

MARCH 1918 ~ N° 146

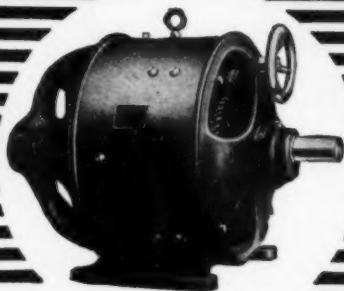
Monthly

A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



The wide ranges of accurate running speeds which can be obtained with Type AS Reliance Motors make them ideal for testing various sizes of machines under the different conditions they may be required to operate.

Reliance

Adjustable Speed

Motors

run at any speed with a constant horsepower output over any range up to 1 to 10. To change the speed just turn the hand wheel—no electric controller is needed.

For details get Bulletin 1014
(We build Constant Speed Motors)

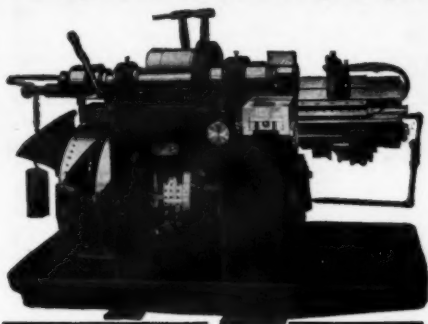
Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.

PRODUCTION

That is Continuous, Rapid, Economical and
Consistently Accurate on

Gridley Automatics

They relieve the labor shortage and meet the constantly
increasing demands for accurate duplicate parts



Gridley Single Spindle Automatic Turret Lathe
Capacities up to 5"

Gridley Multiple Spindle Automatics—Sizes up to 2¼"

Complete data on request

THE NATIONAL ACME COMPANY

GENERAL OFFICES
CLEVELAND

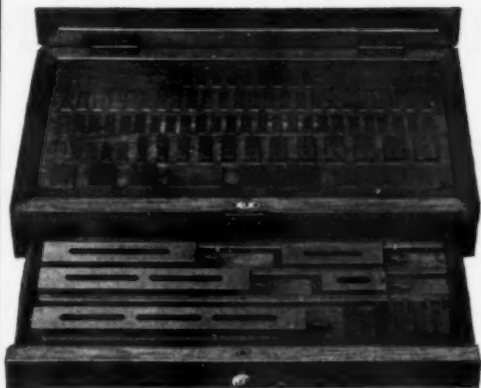
Windsor, Vermont

CANADIAN SCREW PLANT
MONTREAL, P. Q.

Branch Offices:

NEW YORK BOSTON CHICAGO DETROIT ATLANTA SAN FRANCISCO
WAREHOUSES—NEW YORK, CHICAGO With FOREIGN REPRESENTATIVES

*Makers of Gridley Single and Multiple Spindle Auto-
matics at Windsor, Vt., and Acme Automatics, Threading
Dies and Screw Machine Products at Cleveland, Ohio*



"WISMACH"
American Gage Standards

Accuracy .00001" Guaranteed

They have forged their way to the front.

The best American manufacturers are using "WISMACH" Standards for work of extreme accuracy, insuring interchangeability of parts.

Made in English or Metric measurements.

Cut shows set "D," 81 blocks, 3 pairs of jaws, 5 holders, giving measurements in .0001".

Quick deliveries. Write at once for full information.

O. Zernickow

SELLING AGENT

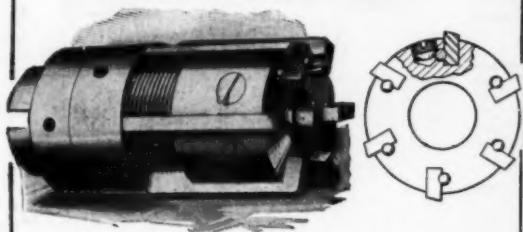
15 Park Row,

New York, N. Y.



ANNOUNCING The Super Reamer

The crowning achievement of many years experience in the manufacture of high grade adjustable reamers.



Large, accurate adjustment.

Blades locked in position by a positive, powerful, double-locking principle that is unequalled for simplicity and strength.

Blades are moved forward to increase reamer diameter instead of backward as with other reamers.

High speed blades. All styles and sizes from 15-16" up.

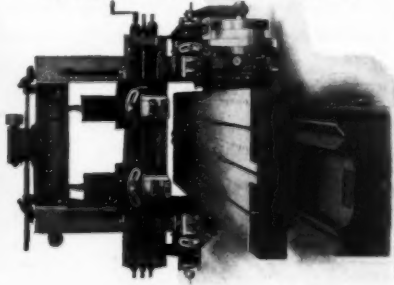
The McCrosky Reamer Co.
Meadville, Pa., U. S. A.



Cincinnati Planers and Boring Mills

Cincinnati Planers

--are noted for their practical speed variation, convenience, adaptability and exceptional rigidity. Sizes 22" to 48" are regularly furnished with our Tu-Speed Drive, as used on the 48" x 36" Widened Planer shown at the left. For a greater number of speeds we provide speed box and variable speed motor drives, for alternating and direct current respectively.



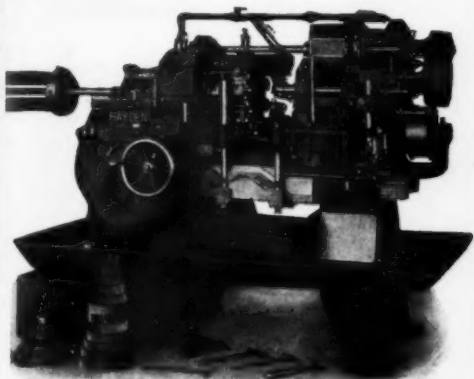
Boring Mills

Cincinnati Rapid Production Boring Mills of the Spur Gear Type are made in sizes 6, 10 and 12 ft. Boring and Turning Mills of the Bevel Gear Type are furnished in sizes 5, 6 and 7 ft. Like Cincinnati Planers, they excel in cutting both metal and costs.

Write for specifications

THE CINCINNATI PLANNER CO., Cincinnati, Ohio, U. S. A.

In a hurry?



The Cincinnati Automatic

—is the machine to use for accurate work when rushed. The actual time per piece is from $2\frac{1}{2}$ to 36 seconds.

48 Superior Features

—are shown in our Catalog, which we shall be glad to send you. Here are one-twelfth of them:—16 spindle speeds and 20 changes of time to make one piece; nine tools can be operated together; starting and stopping lever on each side of machine; four cross slides for circular tools—five longitudinal tool slides for turning, drilling, etc.

It is the most satisfactory and the most universal machine for both jobbing work and long runs.

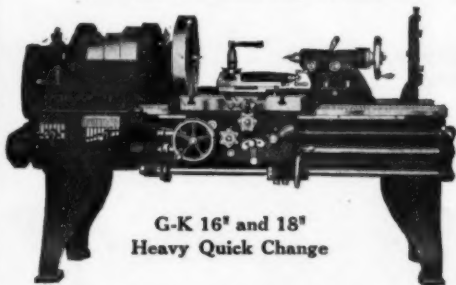
The Catalog tells. Will you send for it?

Cincinnati Automatic Machine Co.

Oakley, Cincinnati, Ohio

G-K Betterments

Mean Practical Lathe Improvements



**G-K 16" and 18"
Heavy Quick Change**

The G-K betterments developed during our 25 years' experience in designing, building and improving G-K Lathes, are real improvements which count in production.

The bed of above lathe is constructed and reinforced so that it absorbs all torsions. The massive headstock is unusually well braced, and the design of the long tailstock embodies one of the greatest improvements made in years. Both headstock and tailstock are placed back of the center line of bed, which brings the tool pressure inside the V's, even while turning large diameters. The improved box-form apron stands up under any power that is delivered to the machine. The gears, of course, are accurately cut from steel forgings.

*Write for full description of betterments
on G-K Lathes from 16" to 30" inclusive*

The Greaves-Klusman Tool Co.

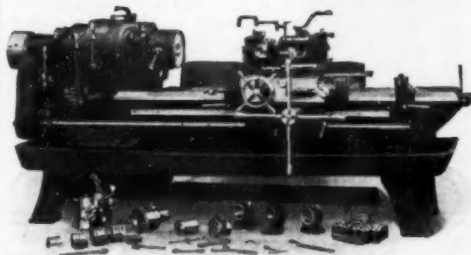
Cincinnati, Ohio, U. S. A.

Cincinnati Acme

**3 1/4"x36" Bar Cap.
16" Chucking Cap.**

Flat Turret Lathe

Combining Two Machines in One



3 1/4"x36" Flat Turret Lathe equipped for bar work

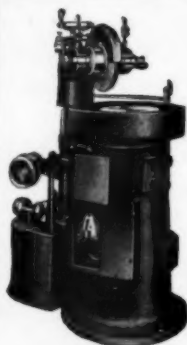
Shrewd manufacturers are using flat turret lathes more and more for machining their detail parts in large quantities.

At this particular time, when it is often necessary to employ unskilled workmen, the demand is for the most rigid construction and greatest ease of operation.

The Cincinnati Acme is the most rigid turret lathe made, designed to withstand sudden and undue strains. The simple construction, with centralized control, makes it exceptionally easy to handle. It is not only an unusual producer of accurate work all the time, but is particularly valuable while you are employing help that is below the standard.

The catalog is convincing; the machine is more so

**The Acme Machine Tool Co.
Cincinnati, Ohio, U. S. A.**



No Greater Accuracy Can Be Secured

—in the grinding of flat, convex and concave surfaces than with the—

Bristol 12-in. Rotary Precision Grinder

It grinds as nearly to absolute accuracy as the present-day progress of mechanics permits, and you should not be satisfied with anything less than that on your work.

Write for specifications

The C. G. Garrigus Machine Company
Bristol, Conn., U. S. A.

Manhattan Surface Grinder

A Revelation in Quiet Efficiency



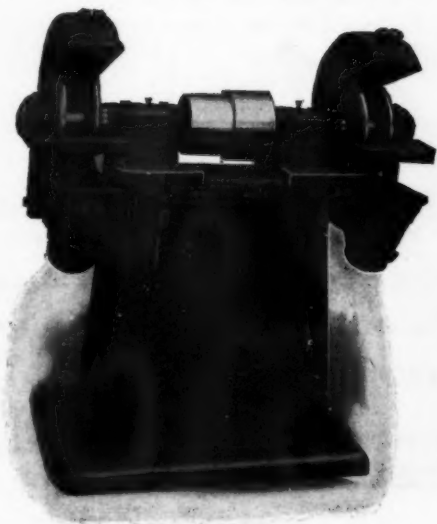
It is compact, yet massive and rigid, eliminating all vibration. Practically every detail shows special advantages.

It gives clearance where most needed. The generous table is ground absolutely accurate with its own wheel. Dials on both feeds are graduated to thousandths, of which fractions may be obtained for extreme accuracy. The construction of spindle, with over-size phosphor bronze bearings, give unusual capacity for heavy cuts. The machine is built throughout for power, accuracy and quiet running.

Complete specifications on request

Manhattan Machine & Tool Works
Dept. A., Grand Rapids, Mich.

Grind it on a "Blount"



No. 6½

Our eight sizes meet all requirements of general grinding work. The large bearings insure accurate work under continuous heavy load.

J. G. BLOUNT CO., Everett, Mass.

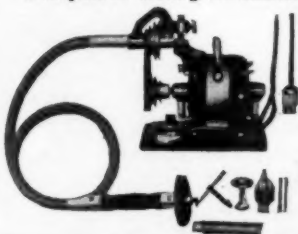
Strand Flexible Shaft Portable Grinder

Made in four sizes: 1-10, $\frac{1}{4}$, $\frac{1}{2}$, 1 H. P.

Adaptable for heavy or light grinding.

A universal portable flexible tool for every shop.

Tool post or drilling attachment and extra ball-bearing handle furnished also.



Write
for
catalog
today

R. G. Haskins,
547 Washington Blvd.
Chicago, Ill.

Giant Universal Joints



For
Heavy
Service

to an
Angle
of 45
Degrees

Made in sizes $\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{4}$, $2\frac{1}{2}$ and $2\frac{1}{2}$ in.

They are self-oiling and enclosed against dirt. Wearing parts are of hardened steel and large diameters. Furnished any length or style. Also the Vanderbeek Universal Ball Joints in many sizes, which run perfectly up to an angle of 70 degrees.

Ainslie Machine & Tool Works

Successors to Vanderbeek Tool Works
HARTFORD, CONN.

When You Buy—Ask Questions

Ask Yourself—

If \$100 to \$500 extra for another cutter grinder is a wise investment by comparison with this one.

If you now have, or are likely to ever have a job this machine won't handle.

Ask Us—and Any Other Maker—

If the spindles are made of crucible steel.

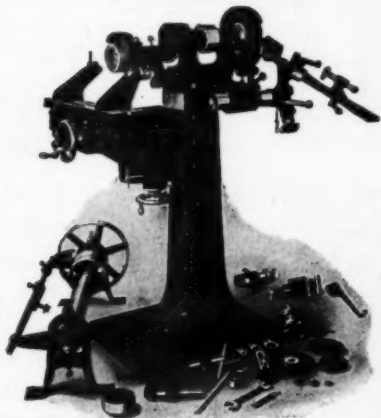
If all the spindle bearings are bronze.

If both cross and vertical feeds have dials reading in thousandths; what the size and kind of thread is and if they run in bronze nuts.

What is the size of the bearings.

What is the size of the ways.

**The More Questions You Ask
The Better for Both You and Us**



Get the circular today

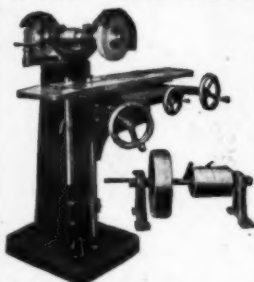
Grand Rapids Grinding Machine Co.

17 Ottawa Ave., N. W.

Grand Rapids, Michigan, U. S. A.



The "Metz"—A Large, Accurate Tool and Surface Grinder



A rigid, serviceable machine for general shop and tool room use, as near mechanically perfect as we can make it.

The high carbon steel spindle runs in split conical boxes of best quality anti-friction phosphor bronze with adjusting nuts. Bearing surfaces are protected and ways are hand scraped. All working handles are in front of machine.

Description and Price?

Metz Machine Tool Works

562 West Washington St., Chicago, Ill.

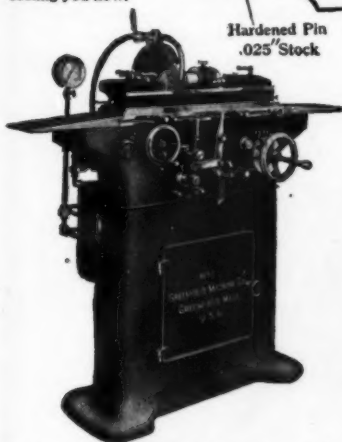
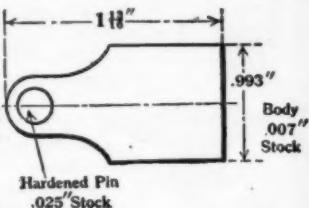
The *Greenfield* Makes A Lathe Look Sick

These Universal Joints are ground from the rough bar, all lathe work being eliminated. The hardened steel pins project about .025, and .007 inches has to be removed from the body part. The whole is left with a smooth finish.

Production 70 Pieces Per Hour

Just try to estimate how many you could do by turning and filing.

Perhaps you have some small work that could be ground for half what it is costing you now.



Let us tell you more about this little high-speed grinder which gives such big results

We have a pamphlet "Some Suggestions for Saving in the Manufacture of Small Parts" which we should be glad to send.

Greenfield Machine Company

Greenfield, Mass., U. S. A.

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
 " No. 0 32 " "
 " No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
 " No. 9 Tilting Table
 " No. 10

Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
 12, 16, 20, 24 and 30 in., 7 ft. tables
 and guard.

Trimmers, Lathes, Core Box Tools, etc.

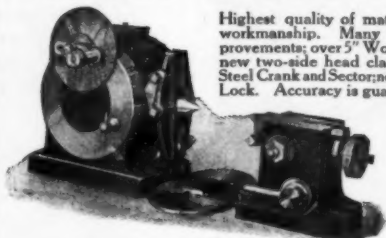
Ask for full descriptions

Chicago Machinery Exchange

1211-1227 Washington Boulevard, Chicago

Dickow's Accuracy Is Right

Dependable 10" Universal Index Centers



Highest quality of materials and workmanship. Many new improvements; over 5" Worm Wheel; new two-side head clamps; new Steel Crank and Sector; new Spindle Lock. Accuracy is guaranteed.

Get the Original—Beware of Imitators

Sold by all dealers. Write today for particulars.

Fred. C. Dickow, 35 So. Desplaines St., Chicago, Ill.

Conserve Man Power

Any BOY in your shop can grind
a drill Quicker and Better on a
New Yankee Drill Grinder
Than your most skilled mechanic
can do the job by hand.



Style "W P L" capacity No. 52 to 2 1/4" Nearly 100 styles to select from
Complete Catalog on Request

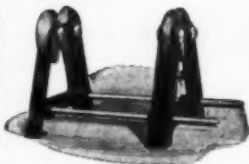
Wilmarth & Morman Co.

Manufacturers of Drill-Surface-Universal Grinders
1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.

The Anderson Ever-Ready Balancing Ways Require No Adjusting

They are unequalled for the easy and accurate balancing of cutter heads, armatures, polishing wheels, aeroplane motors, propellers, crank shafts, cones, pulleys, turbine rotors, etc.

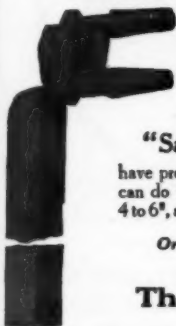
The rotation discs run on ball bearings of special design, and are extremely sensitive. They are made of chilled iron ground true on face, and accurately balanced. Made in several sizes for all requirements.



Worth more than they cost. Want particulars?

Anderson Bros. Mfg. Co.
115 Morgan St., Rockford, Ill.

Your Men Should Be Protected While Putting Belts on Moving Pulleys



It is always a serious matter to have a man injured, and especially in these days of war abroad and conservation at home. Whether you do your own insuring or not, your men *must* have the best of protection.

"Safety First" Belt Sticks

have prevented many accidents for others and can do so for you. Two sizes, 1 to 4" and 4 to 6", at one price, \$1.25 each or \$12 a dozen.

*Order NOW and PREVENT that
serious, costly accident*

The Ready Tool Co.
Bridgeport, Conn.

Redface Pulleys

Sheaves and Fly Wheels



PERMANENT: They are permanent, as they are not affected by age, heat, cold or moisture.

RELIABLE: They do not loosen up under vibration or intermittent loading.

RUN TRUE: They run true, steady the line shaft, and have a very small load due to windage.

REDFACE PULLEYS are especially adapted to use on motors, fans, pumps and special machinery.

Catalog mailed promptly upon request

Pyott Foundry Co.

Cast Iron Pulleys, Sheaves and Fly Wheels

328 N. Sangamon St.,

Chicago, Ill.

Broaching Machines And Broaching Tools



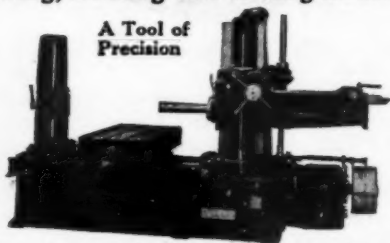
Our Famous Double Machine

The Most Complete Line In The World. We make our machines in 5 sizes and 11 types. *Send for particulars.*

THE J. N. LAPOINTE CO., - - New London, Conn.

Giddings & Lewis (Fosdick Design) Boring, Drilling and Milling Machine

**A Tool of
Precision**



A self-contained machine of greatest rigidity, with direct drive and centralized control, noted for its accuracy, big capacity and ease of operation. *Specifications upon request.*

Giddings & Lewis Manufacturing Co.
Fond du Lac, Wis., U. S. A.

An Efficient Workman because **He's Protected**



Remove the possibilities of injury from moving parts of machines in your shops by the use of "Econo" machine and belt guards.

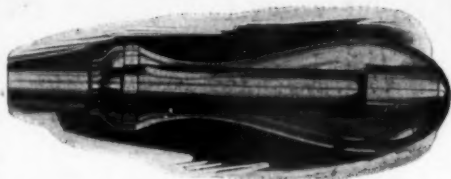
"Make 'em yourself"

Our free book, "Econo Expanded Metal Machine and Belt Guards" tells the story.

North Western Expanded Metal Co.

931 Old Colony Bldg.,

Chicago, Ill.



Quick Action

This is what we call this new Machine Handle. Attached to any power tool, especially the heavier types; adjustments are made with more speed and less effort.

All kinds of standard and special Handles from steel for power tools and similar purposes.

Send for Catalogue and prices.

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio



Armstrong Clamps and Dogs

Drop Forged Steel

All Shapes
All Sizes

Best Quality—Alloy Steel
Screws.

Complete Catalog Free



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

Every Lathe Counts



And is made more valuable with

The Universal Turret Toolpost

The capacity of each lathe so equipped is practically doubled and the change can be made in one minute. Complete set of tools and wrenches furnished with each tool post.

Immediate deliveries

Magna Machine Company

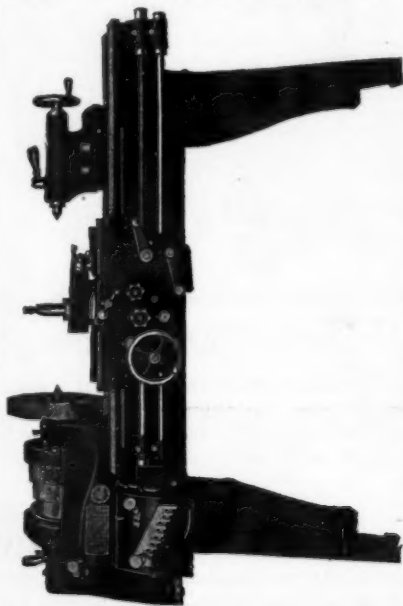
Suite 481, 50 Church St., New York

Also Builders of High Grade Special Machinery, Jigs, Tools, Gauges and Fixtures
Expert Pattern Makers

Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes.** Built in four sizes and in all styles and with any attachments desired.

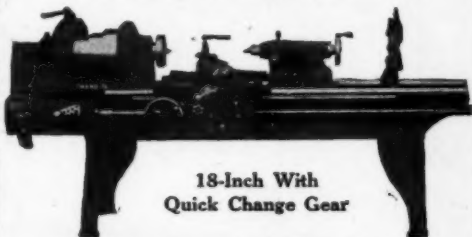
*Sold by a leading Machinery Dealer
in every machinery center.*



The Monarch Machine Tool Co., Sidney, Ohio

For Ultimate Accuracy

The Super-Quality "Chard"



To do the very best work a lathe must be more than "well made" — it must have the super-quality which is the distinguishing characteristic of the "Chard."

That means quality in design and quality in construction; that all parts are so proportioned and related as to make a symmetrical and thoroughly effective tool, and that each part is so accurately machined and fitted to exact and invariable standards that the whole machine is interchangeable.

The "Chard" is for the manufacturer who believes in having the best there is in tools and equipment.

May we prove it up to you on that basis?

16, 18, 20, 24, and 28"; semi- and quick-change;
4-step back gear and 3-step double back gear.

Chard Lathe Company

New Castle, Ind.

DOMESTIC DISTRIBUTORS

THE F. O. STALLMAN SUPPLY CO., San Francisco, Cal.
VONNEGUT MACHINERY CO., Indianapolis, Ind.
ENGLISH & MILLER MACHINERY CO., Detroit, Mich.
OGDEN R. ADAMS, Rochester, N. Y.
THE W. M. PATTISON SUPPLY CO., Cleveland, Ohio.
J. S. MILLER MACHINERY CO., Pittsburgh, Pa.
MONARCH MACHINERY CO., Philadelphia, Pa.

Guaranteed Accuracy!

Mulliner Quick Change Lathes are guaranteed to bore and to turn true to within .001-in., when properly set up.

Only the finest materials and workmanship are used in constructing these lathes. Every Mulliner Lathe is tested to a standard which is way above ordinary requirements.

Circulars giving details on request



THE HEAD: Pan construction—rigid—backward deflection of front bearing impossible.

AUXILIARY QUADRANT: Allows for application of additional gears.

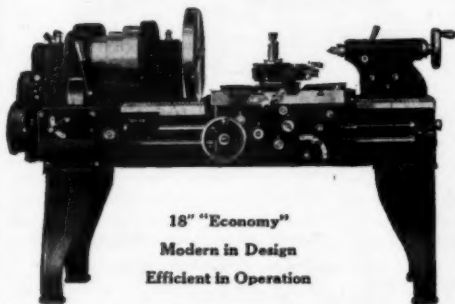
COMPOUND REST: All bearings fitted with bronze bushings.

DRAWN-IN ATTACHMENT: Checks range from $\frac{1}{8}$ in. to $\frac{5}{8}$ in.
VARIABLE SPEEDS.

MULLINER-ENLUND TOOL CO., Inc., Syracuse, N. Y.

A Lathe of High Quality

That is sold at a moderate price



18" "Economy"
Modern in Design
Efficient in Operation

Quality in a lathe does not necessarily mean high cost.

It does mean a good, simple, effective design to start with, modern manufacturing facilities, and a low overhead expense.

If you will examine critically the "Economy" 18" Double Back Gear Lathe, you will be convinced of the merit of its design, and its careful, workman-like construction. We make it good because we know that it must be good to give us the steady, increasing demand — the frequent repeat orders — that quality alone can bring us. The fact that every "Economy" lathe we put out helps to sell another — often many others — proves that it is not only good to look at, but supremely good to use.

*We like to get in touch with users of good lathes
We would like to get in touch with you*

Rockford Lathe & Drill Co.,
1827 Fourteenth Ave., Rockford, Ill.

The Atlas 20" Engine Lathe



Quick Change, Double Back Geared
Made with 8, 10 and 12 ft. Beds, or
longer made to order. 20 and 24" Swing.

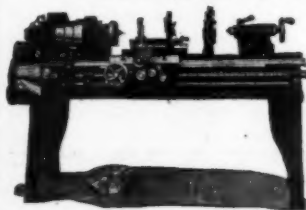
Built as strong and solid as we can produce it, the Atlas is fully named after the super-athlete of old. Heaviest cuts taken with ease and accuracy. Strenuous work does not phase it whatever.

Let us send you full information now

The Taylor Machine Co., Cleveland, Ohio

The "FILSMITH" Powerful Lathes

Built for the Requirements of the 20th Century



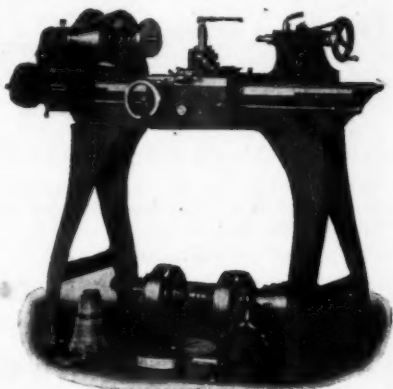
3-Step Cone
Double Back Gear
Q. C. Gear Box
Any Length Bed
14" and 16" Swing

You will find the "Filsmith" dependable in every sense of the word. We have embodied a number of new features, and it is unusually sturdy for its weight. Get the details so you can compare.

PHILIP SMITH MFG. CO., SIDNEY, O.

"WORCESTER"

Means Lathe Quality



**We specialize on 11", 13" and 16" sizes
Cone or geared head, pulley or motor drive**

In their practical operation there is quite a difference between lathes of very similar specifications, caused by the difference in the *care and thoroughness* used in their construction.

It is a statement of plain fact that every Worcester Lathe is built as nearly flawless as we know how to make it, from the smallest part to the finished tool. The reputation of Worcester Lathes has fully justified this care.

The picture shows our 11-inch Lathe with compound rest and power cross feed.

Ask for Bulletin on the size you need

Worcester Lathe Company
68 Prescott St., Worcester, Mass.

Sidney—A Lathe It Pays to Know

Built for High Duty Service



S. or D. B. G. ; Plain or Q. C. G. ; Beds from 6' Up

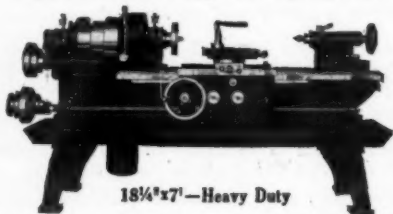
No matter how hard your work or how close your requirements, a Sidney 15", 17" or 19" lathe will serve you most satisfactorily.

Full particulars and prices cheerfully sent on request

THE SIDNEY TOOL CO., SIDNEY, OHIO

Built for Plain, Straight Work

Fulton Manufacturing Lathe Is Efficient

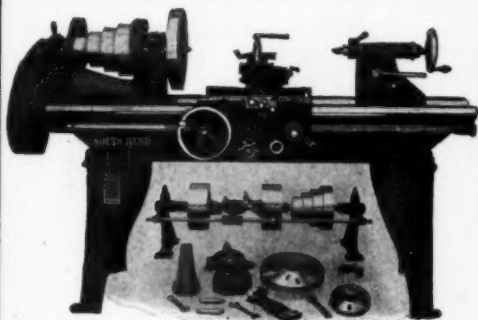


18 1/4" x 7'—Heavy Duty

This high-power tool will do 75% of all your lathe work rapidly and efficiently, while the cost is from \$150 to \$200 less than a screw-cutting lathe of equal quality. Why carry the burden of expensive machines when the Fulton will do your plain turning, boring and facing? Write for full details.

Fulton Machine Tool Co., 1438 Bryan Pl., CHICAGO, ILL.

South Bend Lathe



16 in. x 6 ft. Screw Cutting Engine Lathe

South Bend Lathes have been on the market eleven years. Dealers in every large city.

Swing Over Bed, Inches	Length of Bed, Feet	Dist. Btw. Centers, Inches	Hole Thru Spindle, Inches	Approx. Weight on Skids	Code	Price
13 $\frac{1}{4}$	5	32	$\frac{1}{2}$	1,000	Hasen	\$272
15 $\frac{1}{4}$	6	40	1	1,425	Jadin	352
16 $\frac{1}{4}$	6	36	1 $\frac{1}{8}$	1,700	Juddo	432
18 $\frac{1}{4}$	8	57	1 $\frac{1}{2}$	1,950	Kell	566
21 $\frac{1}{4}$	10	75	1 $\frac{3}{4}$	3,300	Penti	841
24 $\frac{1}{4}$	12	95	2	4,420	Polly	1,218

Made with straight or gap bed. Price includes all the equipment shown in illustration

Many large, busy plants are increasing their production by using South Bend Lathes on duplicate work.

Send for free Catalog illustrating and describing entire line.

South Bend Lathe Works

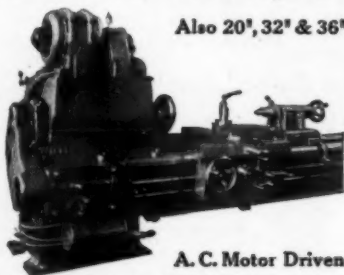
Established 1906

South Bend, Ind.

East End

Wickes 26" Heavy Duty

Also 20", 32" & 36"

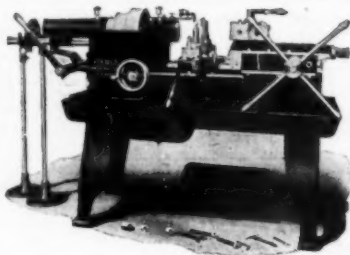


A. C. Motor Driven

A handy and powerful lathe of distinctive merit, for heavy service. It insures a large production of accurate work. You should know it. Send for the specifications.

WICKES BROTHERS, Saginaw, Mich.

1" PIERCE—Rapid And Of Wide Range



Have you any bar stock to turn? If so, you ought to know the capacity, accuracy and power of the Pierce. A folder tells the story. Glad to answer your questions—now. Write us about your needs.

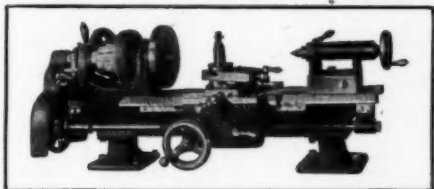
Pierce Machine Tool Company

617 W. Jackson Blvd., Chicago, Ill.

"Dalton Six"

Actual Swing 7¼ in.

The Small Lathe for a Big Job



"DALTON SIX" can be furnished with 30-in. or 36-in. bed, with either two-step or three-step cone pulley.

The Strength and Power of this Lathe is a multiple of its size.

Furnished for either English or Metric Thread cutting.

No manufacturer can afford to be without a "DALTON SIX."

Send for Bulletin which tells about this lathe.

Dalton Manufacturing Corp.

Successors to

Dalton Machine Company, Inc.

1911-15 Park Ave.,

New York, U. S. A.

Did you ever ask us to make those screw machine collets, with regular or irregular holes?

We are prepared to make good deliveries.

Why not try us next time?

Quantities never too small or too large to interest us.

Hardinge Brothers, Inc.
Chicago, Ill.

Designed For Small Work

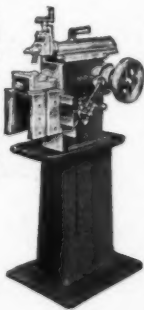
Rhodes Shapers and Slotters Cut Costs

Because they're like big machines in everything but size and price, they are unusually efficient, accurate and economical on dies, tools, models and other small work.

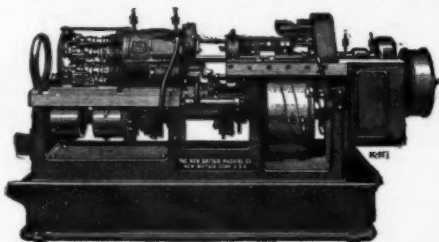
They are light running and easy to handle. We build them vertical, horizontal, and a combination of the two.

Glad to tell you more about them. Send for details or ask questions.

Rhodes Mfg. Co.
Hartford, Conn.



Of course six spindles mean greater production



"New Britain" Six-Spindle Automatic Screw Machine

Of course six spindles mean much greater production—a fact so apparent to the practical man that it hardly seems necessary to state it.

It is readily apparent that six spindles permit the completion at one time of work requiring five or six end operations, which otherwise would have to be rehandled.

And it is equally apparent to anyone familiar with the workings of screw machines that the greater the number of spindles the greater the subdivision of operations that can be made on work of a simpler character—often increasing production on this machine from 50 to 200 per cent.

Glad to mail you further description, including construction, convenience, accuracy, etc., and to submit guaranteed production estimates on your work.



**The
New Britain Machine
Company**

New Britain, Conn., U. S. A.

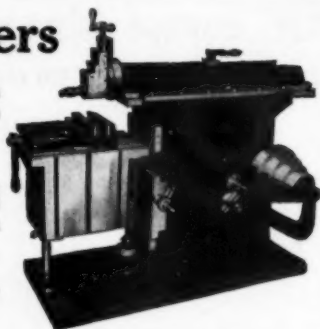


Shapers

The best medium priced Shaper on the market.

Built in 16", 18", and 24" sizes, all back geared crank machines.

A few for early delivery.

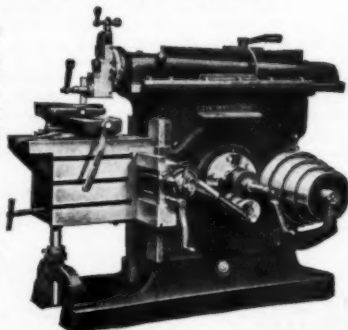


The Osborne & Sexton Mchy. Co.
Columbus, Ohio

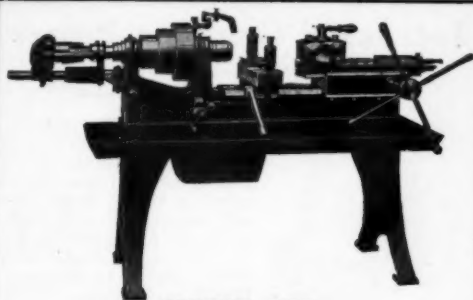
SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

24", 28", 32"
Geared
Shapers of
the Belt Shift
type.



The Smith & Mills Co. Station B.,
Cincinnati, O., U.S.A.



MODEL "D"

Turret Lathes and Screw Machines

Now Ready for Delivery

**Designed for Rapid Manufacturing of
Parts Requiring Several Operations**

MADE IN FOUR SIZES:

- No. 2 { $1\frac{1}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{3}{32}$ " Hole Through Spindle.
- No. 3 { $1\frac{5}{16}$ " Wire Feed Capacity, Plain Head
 { $1\frac{1}{8}$ " Hole Through Spindle.
- No. 4 { $1\frac{1}{2}$ " Wire Feed Capacity, Geared Head
 { $2\frac{1}{32}$ " Hole Through Spindle.
- No. 5 { $1\frac{7}{8}$ " Wire Feed Capacity, Geared Head
 { $2\frac{3}{32}$ " Hole Through Spindle.

**With or Without Power Feed to Turret Slide.
Mechanically Perfect and Fully Guaranteed.**

Manufactured By

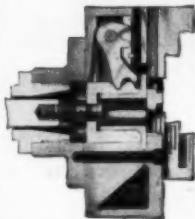
Smurr & Kamen Company

313 N. Whipple St., Chicago, Ill.

Increased Gripping Power

One-third Less Air Consumption

With American Air Chucks



If you chuck shells or munition parts, or use air chucks of any kind, including collet chucks, expanding mandrels, stub arbors, milling or tapping fixtures, the real economy, increased speed and improved service of American Air Chucks will be of vital interest. Ask us to show you. No cost, no obligation; and you'll be glad you found out.

Neidow & Payson Company

9 South Clinton Street, Chicago

Selling Agents for the Makers

AMERICAN PNEUMATIC CHUCK CO.

Saves Time Between Cuts

Which Means Money

**THE BARKER
Wrenchless Chuck**



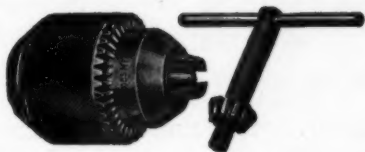
Operated more simply and effectively than an air chuck, and at far less cost. The work is centered automatically, chucked with one movement of the lever, and held with all the pressure it will stand. Gives the operating facility and speed of an air chuck without the cost for installation and maintenance. Made with two or three jaws for all work on lathes, turrets or semi-automatics.

Write for full description

Thomas Elevator Company

22 S. Hoyne Ave., Chicago, U. S. A.

JACOBS IMPROVED DRILL CHUCKS



The Chucks Without a Weakness

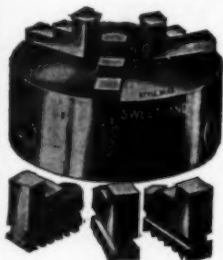
The effective application of the toothed sleeve and key to the otherwise remarkably perfect structure of the three-jawed spanner sleeve chuck, is such a simple and common-sense proposition that the wonder is that it had never been done before. The result is a chuck that is not only without a weakness in theory, but our rapidly growing list of satisfied customers, who recommend it one to another, is abundant evidence that it makes good in practice.

The Catalog explains fully

The Jacobs Manufacturing Co.
Hartford, Conn., U. S. A.

Sweetland Lathe Chucks

Accurate—Adaptable—Dependable



Accurate through long service—some used 20 to 30 years without impairing accuracy.

Adaptable to take a quick grip on work of different shapes.

Dependable to hold securely under the heaviest cuts.

"For taking a quick and firm grip the Sweetland beats all."

Ask for Catalog No. 10-C

The Hoggson & Pettis Mfg. Co.

New Haven, Conn., U. S. A.



We manufacture a great variety
Lathe Chucks, Drill Chucks, Centering Chucks
Also
Portable Jaws for Lathe face plates and Machine tables.

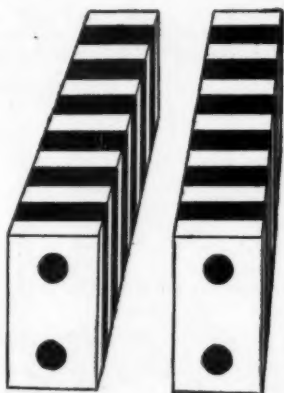
Let us send you our Catalog

The Cushman Chuck Co.

Established 1862

Hartford, Conn.

RADNETICS



have a holding of 100% in the machine tool trade, and 85% of the holding power of the magnetic chuck on which they are used. Numerous REPEAT ORDERS emphasize the fact that they fill a long-felt want.

If not thoroughly acquainted with these efficient production tools, permit us to send you our Radnetic pamphlet. Get in line with other men who are up-to-date on surface grinding.

LAWSON & COMPANY, Inc.

416 West 33rd Street, New York City

Sole Distributing Agents

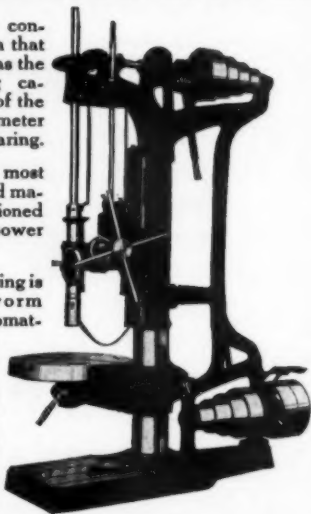
THE KAR ENGINEERING CO., INC., Manufacturer and Patentee

The Drill With The Pull

Experts have confirmed our claim that the "Aurora" has the greatest pulling capacity, because of the large pulley diameter and ratio of gearing.

It is built of most carefully selected material, and proportioned to insure great power and strength.

The table bearing is extra large; worm wheel drops automatically, giving a positive release; tapping attachment, compound table, drill lubricating outfit, and motor drive if desired.



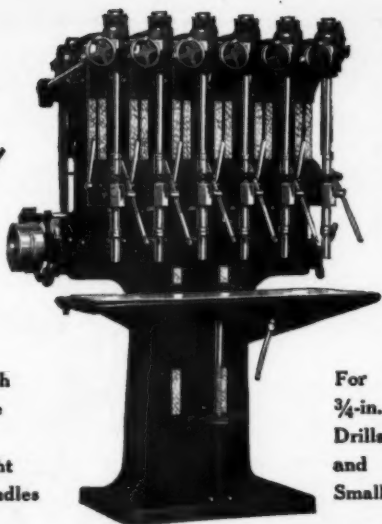
Sizes 21" to 36"

DRILLING TESTS OF 24" AND 26" DRILL

Size of Hole	Spindle Speed	Feed per Minute	MATERIAL
1"	360	9½"	Cast Iron
1"	360	6½"	Mild Steel
1½"	350	6½"	Mild Steel
1½"	350	9"	Cast Iron
1½"	225	5½"	Mild Steel
2"	225	6½"	Cast Iron

The Aurora Tool Works

Aurora, Indiana, U. S. A.



With
One
to
Eight
Spindles

For
 $\frac{3}{4}$ -in.
Drills
and
Smaller

Henry & Wright Drilling Machines

Drill Faster—Last Longer

Their gearless power transmission with frictionless bearings accomplishes two very desirable purposes:

First, the minimizing of friction in operating the machines means the delivery of the maximum of working power at the drill point. **They drill faster.**

Second, the saving in power by the reduction of friction can only mean far greater life for the machines themselves. **They last longer.**

Full details and our Special Feed and Speed Chart free

The Henry & Wright Mfg. Co.

760 Windsor St., Hartford, Conn.

Foreign Agents: Allied Mchy. Co. of America, New York, N. Y.

Bench Drills

with 1 to 4 Spindles
 $\frac{1}{2}$ " Capacity.

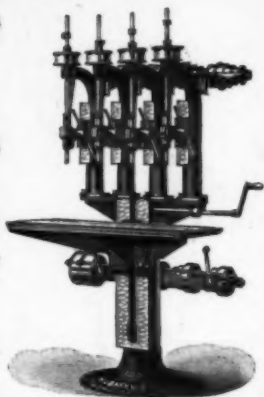
Floor Drills

1 to 7 Spindles
 $\frac{1}{2}$ " to $\frac{3}{4}$ " Capacity.

Power feed on as many
spindles as you want.

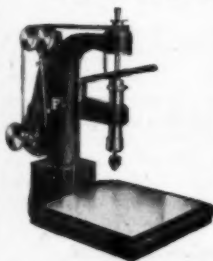
Francis Reed Co.

43 Hammond St.,
WORCESTER, MASS.



The "Fenn" Drilling Machine

15,000 R. P. M.—Very Sensitive



Instead of the usual rack and pinion, the feeding is done with a lever connecting direct to the spindle sleeve.

By providing a counterbalance to the weight of lever, sleeve, spindle and chuck, the feed is extremely sensitive. It is particularly adaptable to the finest work.

A tool of peculiar merit.

Full description on request

FENN MANUFACTURING CO.,

Hartford, Conn.

Cable Address "Fenn." West. Union Code
W. L. Fenn. W. A. Fenn.

**One Firm
"—finds
it without
an equal"**



One Of The Most Productive Machines

the William Hall Co., Wollaston, Mass., owns. is a No. 1½ Knight Milling and Drilling Machine. This concern *finds it without an equal* for work having a number of angles and surfaces to machine, and for making dies, jigs, molds and metal patterns. It handles heavy milling just as readily as the lighter jobs, is easy to control, convenient in adjustments, built to stand strenuous service.

You incur no obligation in writing us about your needs and asking for information. Let's hear from you.

W. B. Knight Machinery Company

3920 W. Pine Blvd., St. Louis, Mo.

**Knight Machines
are made in two
other sizes, both
as efficient and
productive in
their particular
fields as No. 1½.**



Three Holes To One



Sellew Adjustable Drill Heads

enable you to drill
three holes at a time
instead of one.

Special Heads made
to suit your work.

Get in touch with
us, for the sake of
economy and a
greater output.



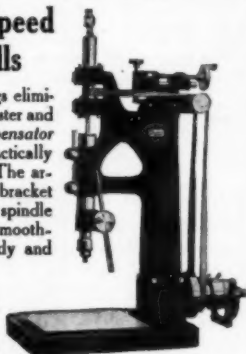
Sellew Machine Tool Company
Pawtucket, R. I.

Demco High Speed Sensitive Drills

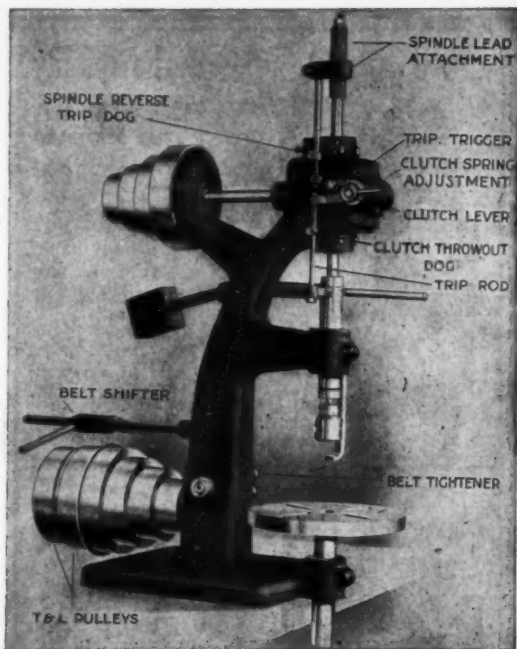
Norma annular ball bearings eliminate friction. The belt adjuster and automatic belt stretch compensator—an exclusive feature—practically do away with vibration. The arrangement of adjustable quill bracket insures perfect alignment of spindle in any position. They are smooth-running, fast, accurate, handy and durable.

Also made in floor type,
with one to four spindles.

Write for specifications



The DeMooy Machine Company
706 Frankfort St., N. W. Cleveland, Ohio



“Cinti” Tapper and Drill

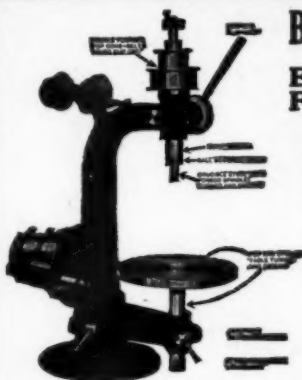
AUTOMATICALLY taps to desired depth, reverses and stops the spindle. Its rapid and accurate operation, without danger to taps or threads, does not depend upon skill of operator. Provision is made for a sensitive drive for light tapping or tapping in soft metal. It is thoroughly well built in both floor and bench types.

An exceptionally handy tool. Want full description?

W. H. Simmons & Company

208-12 Lawrence St.,

Cincinnati, Ohio



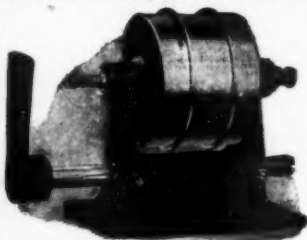
Burke Quality Excels on Fine Points

Machines of
Burke Quality
are never built
with any name
cast on the
frame but our
own—

**BURKE
CONNEAUT
U. S. A.**

For Sale Everywhere

This Tapping Machine Now Has Greater Capacity



**Burke's
No. "D" Taps
5/8" Holes
in
Horseshoe
Steel**

BUILT throughout with exceptional care, our several sizes give service in proportion. Accurate, rapid and convenient, they give solid satisfaction. No. "D" sells for \$50.

Send for details today

The Burke Machine Tool Co., **Conneaut, Ohio**

THE *Avey* BALL BEARING DRILLING MACHINES



Hundreds
of
Shops
are
Modernizing
their
Drilling
Departments

Enormous Increase In Output

in drilling small holes may be obtained by
using the No. $\frac{1}{2}$ machine above shown

Spindle Speeds Up To 12000 R.P.M.

*We have other sizes and types including
automatics to enable specializing on any job*

The Cincinnati Pulley Mch. Co., Cincinnati



The Sipp

Quick-Change-Speed
Drill



This Opinion

makes it plain that there is no difference, in merit, between single- and multiple-spindle SIPP DRILLS. No matter how many spindles there are, the superiority of THE SIPP makes itself felt.

FEATURES

**Quick
Change Speed**
Change in 2 seconds

**Most
Efficient Drive**
No belt troubles

Safety First
All parts protected

**Heaviest
Drill Made**
Yet very sensitive
All Ball Bearings

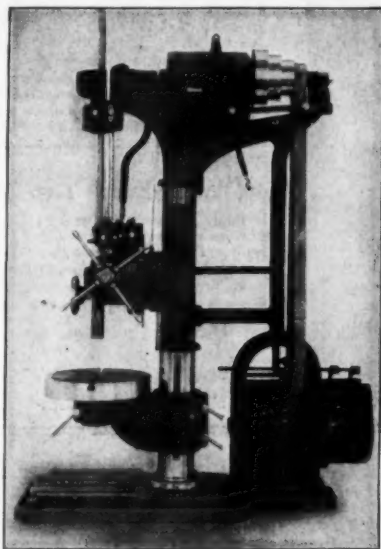
"Regarding the performance of THE SIPP DRILLS in our plant, beg to say we are very much pleased with your machine and believe it to be equal to the best on the market. There are several of them in use in single-, double- and three-spindle types and I find all of them to be giving entire satisfaction."

New Process Gear Corpn.
Syracuse, N. Y.

In the next issue, look for further pointers about THE SIPP.

THE SIPP MACHINE CO.
Keen Street, Paterson, N. J.

**New
25-
Inch
Drill-
ing
Ma-
chine**



**A Tool That Will Go The Limit
And Produce Results All the Way**

It is a dollar-saver, because it combines ease and rapidity of manipulation with exceptional strength and power. Thirty years experience in designing and building high grade drilling machinery are reflected in its capacity, convenience, effectiveness and economy. Worked out as a fresh design, complete and consistent in every part, it is free from makeshifts and compromises. Hence the claim, which rests upon a substantial foundation, that it cannot be beaten as a rapid producer of accurate, low-cost drilling.

We want to describe this machine to you in detail, so that we may show you just how and why it is the right tool for your work. May we have your permission to do that? No obligation in any way.

Just Say You'd Like to Know

Weigel Machine Tool Co., Peru, Ind.



Our Claims Are True

Before they are convinced by using the "Wear-Ever" Tap Chuck, some people wonder whether our claims are not too good to be true. It is difficult to believe that there are so many advantages combined in such a simple, inexpensive device. Its simplicity, however, is its strong point. The

"Wear-Ever" Tap Chuck

is made of one piece and hardened. It not only lasts longer than others, but it costs less. It drives the tap true, regardless of variation in size of shank, reducing tap breakage to a minimum, and no time is lost in setting it for various sizes. It saves in time, taps, cost-price and renewals.

Want proof, prices and particulars?

Scully-Jones & Co.

Room 555 Railway Exchange Bldg., CHICAGO



You Can Tap Deep Holes Without Special Taps

If you have deep holes to tap, it isn't necessary to keep on hand a lot of special taps with long shanks.

A Set of Three

Allen Tap Extensions

Adds from 1½" to 11"

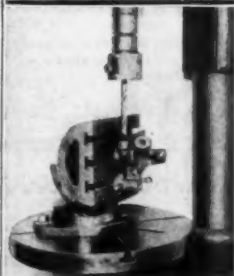
to the length of the shank, in six different combinations. The sockets are formed by the Allen Patented Process, insuring reliability under hard service.

The economy of this method is at once apparent, and no machinist or tool-maker should be without his set of Allen Tap Extensions.

Write for the full explanation

ALLEN MFG. CO., Hartford, Conn.

Makers of the Allen Safety Set Screw



Universal Angle Plate

**For Accurate Milling,
Boring, Grinding, Etc.,
At Any Angle**

This well-built, convenient tool swivels on the graduated base through a complete circle and tilts to 90 degrees, making available any desired angle.

12 Holes at Different Angles

were bored in the piece shown in the picture without removal from the plate. Whether the requirements of your work be greater or less, our Universal Angle Plate will handle it easily, quickly and with extreme accuracy.

Throw away all inaccurate and makeshift rigs for this purpose when you can secure such a thoroughly satisfactory device at a moderate cost.

Sizes 4x6, 6x8, 8x10 and 12x18. The 12x18 is furnished with worm adjustment, and the 8x10 either with or without that feature.

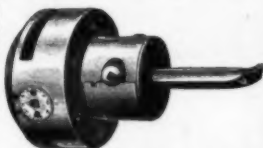
Particulars on request

**Boston Scale
& Machine Co.
100 Ruggles St.,
Roxbury, Mass.**

Casler Offset Boring Heads

Afford Big Capacity for Accurate Work

It is all so simple and convenient—you clamp the tool or fixture on the milling machine table and holes are quickly and accurately bored to size by rotating the boring tool in the Casler Offset Boring Head.



Not only does this modern method save time, but it enables you to use the vertical and horizontal adjustments provided on the machine. You are thus assured of a high degree of exactness in both the location and size of holes.

Styles and sizes to meet practically all requirements are shown in Catalog C. Full information cheerfully sent on request.

MARVIN & CASLER CO., Canastota, N. Y.



Kelly PRODUCTION Tools

for Cylinders,
Crank Cases,
Connecting Rods,
Auto Parts, Etc.

We Make
DELIVERIES
in 1 to 10 Days

They
"ADJUST"

Write for Catalog G-H

TRANSMISSION CASE TOOLS (13 OPERATIONS)
FOR MOLINE PLOW COMPANY
J. H. DAVIS, GENERAL SUPERINTENDENT THE KELLY REAMER CO.

THE KELLY REAMER CO., CLEVELAND, OHIO, U. S. A.

C. W. Burton, Griffiths & Co., London, English Agents.
Burton Fils, Paris, French Agts. 40 Domestic Agencies.

"Van Dorn"

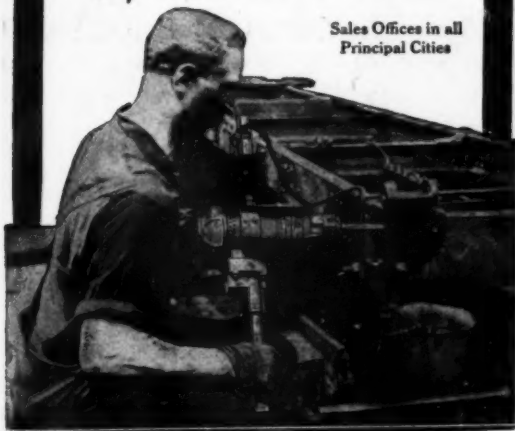
Portable Electric Drills for YOUR Work

Whether you drill iron, steel, copper, brass, slate, marble or wood,
you can reduce your drilling costs with a Van Dorn Portable
Electric Drill "made for your work."

Write for catalog H. M. showing types and uses

The *Van Dorn* Electric Tool Co.
Cleveland, O.

Sales Offices in all
Principal Cities



100%

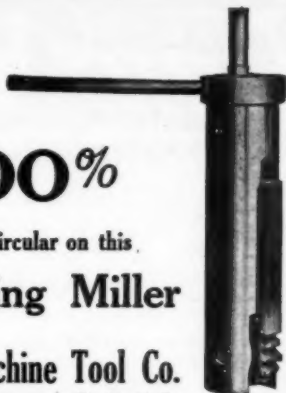
Write for Circular on this

Keyseating Miller

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.



You can give a tap
just enough power
to cut the thread
by using

**The "Double Gripp"
Safety Tapping Chuck**

When the tap hits the bottom or gets
in trouble the safety friction slips.

**Ask Your Dealer
or Write Direct.**

They are sold on approval

William L. Procunier

549 Washington Blvd., Chicago, U. S. A.



Use-Em-Up and Standard Type

Drill Sockets



Use-Em-Up Type

**All Kinds
All Sizes**



**Special
Tools Made
To Order**

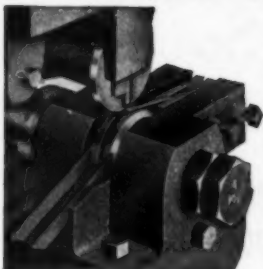


Standard Type

The Collis Company
Clinton, Iowa

The Gray Sheet Metal Cutter

Not a Rotary Shear—It's Something New



Cuts sheet metal up to 3-16" thick at the rate of 20" to 30" a minute

It multiplies a man's value many times and reduces cutting costs 90%. It makes easy work of many a job you would rather not tackle by hand. It makes a clean kerf, leaving the metal flat and the edges smooth. It easily cuts the most intricate patterns.

You should know its full value. May we tell you?

W. J. SAVAGE CO., Knoxville, Tenn.

Quickwork Rotary Shears

Never Fail to Decrease the Labor Costs from 25% to 50%;

Never Fail to Increase the Output;

Never Fail to Do Better Work.

Cuts straight lines as well as any other Rotary Shear, and in addition will cut the most irregular, serpentine and zig-zagged lines across the sheet with one passage of the metal; or it will cut any shape or opening in a sheet without cutting in from the side.

Has three speeds; both cutters driven and the metal is self-feeding, and comes through with smooth straight edges. Send for new catalog.



Twelve Sizes

Cutting any thing from the thinnest sheets to 3"

Steel Plates.

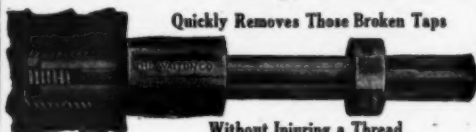
THE QUICKWORK COMPANY

Successor to H. Collier Smith, Detroit.

Detroit Office and Salesroom, 807-815 Scotten Avenue, Detroit, Mich.

Main Factory and Office
St. Marys, Ohio.

The Walton Tap Extractor



Quickly Removes Those Broken Taps

Without Injuring a Thread

You know how much it would have saved you on one job if you had had a Walton Tap Extractor handy at the time.

But do you realize how often broken taps cause delays and losses in your shop? It is fairly estimated that 90 per cent of taps become broken instead of wearing out, and if you know how many taps you replace in a year, you can tell pretty close to how many cases of trouble and delay the Walton Tap Extractor would save you.

It's mighty handy, also inexpensive. Want folder—or trial?

THE WALTON CO., Hartford, Conn.

Partridge Bench Tappers



Well made, handy and reliable. Practically every machine shop needs one. The No. 1 taps to $\frac{1}{4}$ in. No. 2 taps to $\frac{1}{2}$ in.

Small Turning Lathe Sets

All parts accurately made and fitted; bottoms planed true with centers. Pulleys crowned and turned inside. Bearings of Nos.

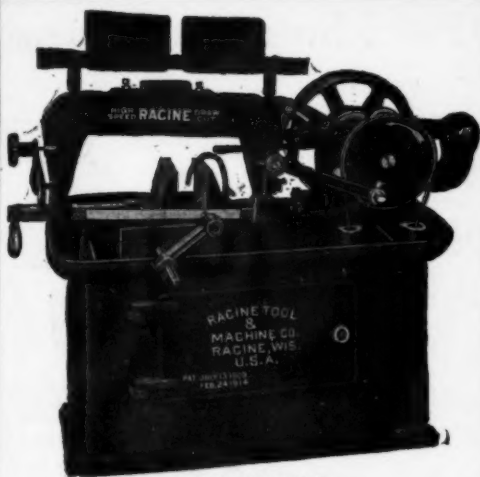
1 & 2 are of cast iron; Nos. 3 & 4 are babbitted. The four sizes swing 6, 8, 11 and 13 in. Handy for polishing small metal parts, and wood-turning. Glad to receive your inquiry for description and prices.

Write me about your requirements



E. O. PARTRIDGE, 2041-2049 CHICAGO

Also Bench, Column & Cabinet Grinders, Polishing Lathes, Light Punch Presses, Hollow Mills, Countershafts, Chuck Arbors and Saw Mandrels.



Standard the World Over

“RACINE”

High Speed Metal Cutting Machine

The only high speed metal cutting machine on the market that is absolutely positive in every action and will duplicate itself in every cut during the entire life of the machine. All wearing parts are adjustable and accurately machined.

We make a complete line—25 Types—a machine for every purpose—either belt or motor-driven. These machines are equipped with three-speed transmission when desired, enabling you to cut any metal at the proper speed.

Racine Tool & Machine Co.
Racine, Wisconsin, U. S. A.

Peter Bros. Metal Cutter

**Saves Material, Labor and Time
The 1-16 inch Saw Goes Thru Anything**

Cuts off High Speed Steel as if it were wood, and practically without waste. Reamers, drills, forming tools, as well as tubes, rods, and bars of brass, copper or aluminum, cut quickly and straight—no grinding afterwards. Does not draw the temper, and pays its cost in a short time. Highly economical in both tool room and shop. ☉

8" Size \$17.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{1}{2}$ " square.

12" Size \$50, with C. S.
Cuts up to $\frac{3}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



AUTOMATIC HIGH SPEED SAW

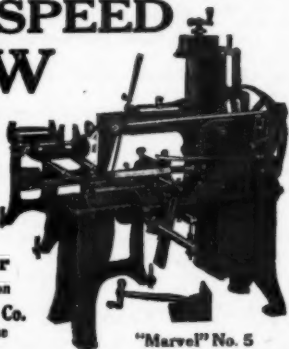
Attention is invited to the "Marvel" No. 5

Cuts duplicate pieces faster and at less cost than any other method. Entirely automatic.

Feeds the Bar

Write for full information

Armstrong-Blum Mfg. Co.
341 N. Francisco Avenue
Chicago, Ill.



"Marvel" No. 5

The World's Greatest High Speed Metal Saw



The Lift that Never Fails

In designing the Peerless, the question of lift received especially careful attention, and in place of the so-called positive lift, which cannot be held down even if the operator wishes without breaking something, the balanced lift was adopted, which gives the needed flexibility, without the chance of failure in service. The Peerless lift can not fail in operation, because the frame is always over-balanced and rises of itself, while if desirable to hold it down, the operator can do so without danger of breaking anything. The way this lift works out in service proves it to be one of the many improvements that we have made in the machine as compared with earlier designs.

The best evidence of the superiority of the Peerless is found in the reports of satisfied users, and in their continued preference for it as shown by repeated re-orders.

You'll be pleased too when you try it.

Thirty days at our risk and expense. Order now.

Peerless Machine Company
1609 Racine St., RACINE, WISCONSIN

Nutter



G.T.D.
PRODUCTS

TAPS - DIES
SCREW PLATES
GAGES
REAMERS -
PIPE TOOLS
THREADING MACHINES
LATHES
SCREW MACHINES
GRINDERS
CUTTING OFF MACH.
SAW AND CUTTER
SHARPENERS

Greenfield Tap and Die Corporation
Greenfield, Massachusetts, U.S.A.

New York-28 Warren St.
Chicago-13 South Clinton St.

Canadian Factory
Wells Brothers Co. of Canada Ltd.
Galt, Ontario





ter and Barnes

Cutting-Off Machines

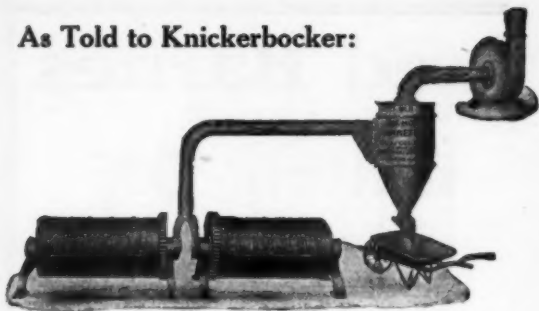
Several distinctive features make Nutter & Barnes Machines big producers.

One feature is the Combination Screw Guard and Lubricating Device which delivers a large stream of oil directly to the cutting point, making very high speeds possible.

Immediate Deliveries
can be made on some styles

Get in touch with us today before they are all sold

As Told to Knickerbocker:



Nearly Half the Power Is Saved

With "Rarefied" Dust Collectors

A Customer Writes:

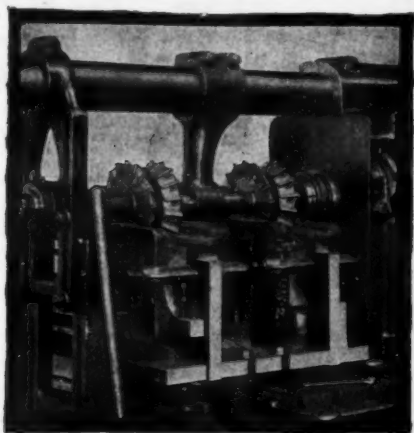


"This reduction in horse power is a great thing. Today we are operating the entire department with two 10s and one 5, making a total of 25 electric horse power, and before the installation of your Collectors we used 45 h. p. to do the same work."

That's the experience everywhere—in plants that use as many as 20 and in shops where only 1 is used—the Rarefied saves power, reduces repairs and gives greater efficiency. There's no cleaning out by hand, as the dust is collected and automatically discharged before the air reaches the fan.

*Our interesting and instructive booklet on request
Let us send you a partial list of users*

The Knickerbocker Company
Jackson, Mich.



Note the full bearing at the back of each tooth against the solid steel body of the cutter—

yet these teeth can be easily and quickly removed when it is desired to replace them either singly or in a full set.

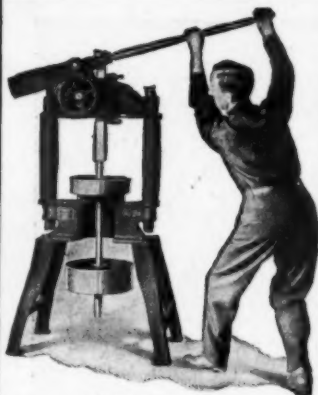
This strength of design has led to the adoption of these inserted tooth

Brown & Sharpe Cutters

in shops everywhere on "heavy duty" jobs. You, too, will find greater efficiency at a considerable saving by the use of these cutters in your shop wherever possible.

Catalog on Request

**BROWN & SHARPE MFG. CO.,
PROVIDENCE, R.I., U.S.A.**



No. 24 Press

Efficient Equipment Atlas Presses

for building and repairing automobiles and general machine shop operations requiring pressure up to 25 tons and centering capacity up to 38 inches.

For driving mandrels; bending and straightening, broaching, embossing with dies, setting bushings and many other every day manufacturing jobs, there is an Atlas Press. All sizes for all purposes. *It will pay you to investigate.*

Atlas Press Co.

317 N. Park Street,
Kalamazoo, Mich., U. S. A.

Hydraulic Presses

Hand, Power, or Both

They work both easier and quicker than screw presses, and easier than geared presses.

We build to order any kind of hydraulic press, horizontal or vertical, from 10 to 2,000 tons capacity, at lowest price for quality.

Tell us your needs, and write for collection of circulars which illustrate many hydraulic presses of our manufacture.



Many Styles
Many Sizes

Type "B" Special
Power Arbor Press

LOURIE MFG. CO., Springfield, Ill.

Cap.

20

Tons

Price

66⁰⁰

Net



WEAVER

Forcing Press

WE ARE SPECIALIZING upon this one size and style of press. It is the ONLY press we make, therefore we are able to produce a better article at less money than were we compelled to carry the overhead necessary to produce a great variety of styles.

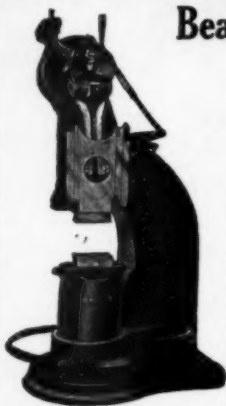
5-inch, 9-pound channel steel frame, 32-in. wide, 15-in. hand wheel, carried upon ball bearings. Bronze Thrust Bearings, Screw 2 in. in diameter with 3-pitch Acme thread. Range of movement, 12 in. The screw does not revolve.

Net Price (32-in. Width) \$66.00

Weaver Manufacturing Co.

2179 So. 9th Street,

Springfield, Illinois



Beaudry Hammers

For General Forging
Saves Fuel, Time and Labor.
Cuts Forging Costs in Two.

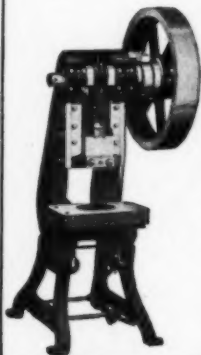
Belt or Motor Driven

Beaudry & Co., Inc.

141 Milk St., Boston, Mass.

SALES AGENTS — Brown & Zortman Machinery Co., Pittsburgh, Pa.; Eccles & Smith Co., San Francisco, Los Angeles, Calif.; Portland, Ore.; Hallidie Machinery Co., Inc., Seattle, Wash.; Alfred Herbert, Ltd., Coventry, Eng., London, Paris, Calcutta, Yokohama; C. T. Patterson & Co., Ltd., New Orleans, La.; Sherritt & Stoer Co., Philadelphia, Pa.; The English Tool & Supply Co., Kansas City, Mo.; The E. L. Essley Mch. Co., Chicago, Ill.; Milwaukee, Wis.

Here Is A Press



With Plenty of Steam
Back of THE PUNCH

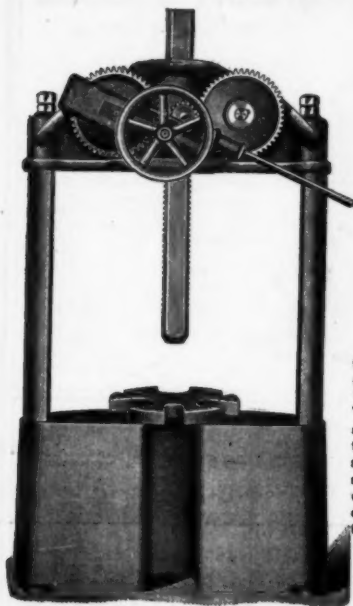
HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and inclinable types. Their great power backed by rigid design enable them to do the work you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.

Greenerd Arbor Presses



Are made in all
styles and sizes
with pressure
ranging from

**15 Pounds
to
40 Tons**

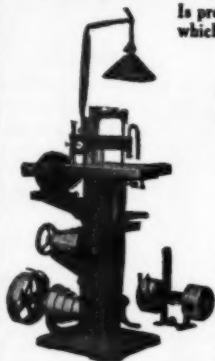
Greenerd Arbor Press
castings contain from
10 to 15% of STEEL.
Tested pieces one inch
square on 12-inch cen-
ters show transverse
strength of three thou-
sand to thirty-six hun-
dred pounds. Tests
occasionally reach four
thousand pounds.

THE REASON WHY it requires 30,000 feet of floor space to fill orders for Greenerd Arbor Presses is the same reason that impelled the U. S. Government to order over 1,000 Greenerds during the last few months. They have the quality and adaptability which saves labor and speeds up work in countless ways.

Ask your dealer or write for Catalog to—

EDWIN E. BARTLETT, Nashua, N. H.

The REARWIN Die Filing Machine



Is provided with an extra improved arm which is valuable in filing die cast molds

It is the machine you want for production. It has the pull of a 2" belt over a 12" friction pulley and is adjustable to large and small work as follows:-

Dies for Electrical Manufacturing, Clocks, Type-writers; Threading Dies, Parts of Automobile Body Dies, and many others not mentioned.

It can make good on your dies and other manufacturing.

Circulars for the asking

W. D. Rearwin

341 Mill Ave., Grand Rapids, Mich.

Immediate Shipment

From Toledo Stock

New General Electric Alternating Current Motors

A few of the items in our Stock:

220 or 440 Volt

60 CYCLE-3 PHASE

3-	50 h. p.-	Type KT-	900 r. p. m.
1-	100 h. p.-	" "	720 r. p. m.
1-	150 h. p.-	" "	720 r. p. m.

25 CYCLE-3 PHASE

2-	100 h. p.-	Type KT-	750 r. p. m.
1-	100 h. p.-	" "	500 r. p. m.
1-	75 h. p.-	Form M	750 r. p. m., Slip Ring
1-	100 h. p.-	" "	750 r. p. m. " "

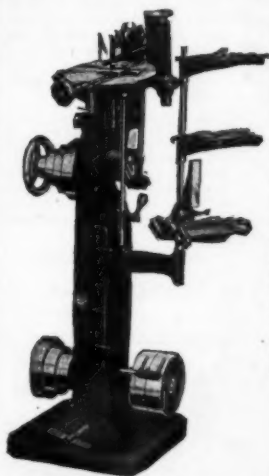
Write for Nagel Motor List No. 24



THE W.G. NAGEL ELECTRIC CO.
TOLEDO, OHIO



Cochrane-Bly Machines Insure Accurate, Low-Cost Filing



No. 2 Filing Machine

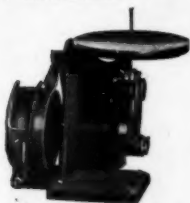
The Bench Filing Machine, shown on the right, is compact and convenient for light filing. Furnished with or without Upper File Support.

Accurate filing by hand is difficult for the expert; with the Cochrane-Bly No. 2 Filing Machine it is rapidly and perfectly accomplished at minimum cost.

Table is adjustable, also length of stroke, and there are four speeds.

The standard equipment includes arms for Hack Sawing and extension holders for Jig Saws.

This machine meets the most exacting tool room requirements where close finish is desired.



Bench Filing Machine

Glad to mail you complete description

Cochrane-Bly Company

Rochester, N. Y., U. S. A.

**Also Cold Saws and Automatic Cold Saw Sharpeners
Universal Shapers for Die and Tool Work**

Treat It With Respect

Bar Stock Is Worth Money



Bar stock is worth money these days, and it should be kept where the various kinds and sizes can be separated and where it is easy to see just what you have.

"The Handiest Rack"

is an inexpensive device which neatly stores several tons of expensive pipe, shafting and bars.

The stock occupies about a quarter of the usual space, is easily handled on or off, is out of the way, and may be kept properly assorted for quick inspection.

How about that trial order?

Wm. S. Yohe Supply Co.

232 Second St., S. E.,

Canton, Ohio



Style "C"



The Hinge



Style "Y"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

GITS OIL CUPS

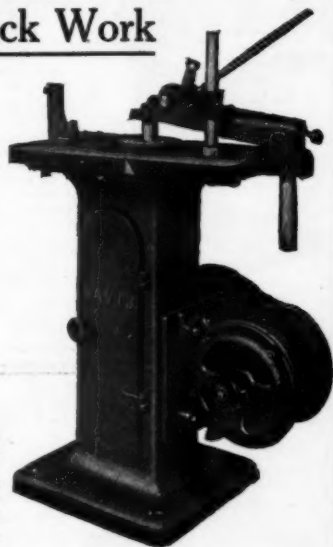
Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

GITS BROS. MFG. CO.
555-557 W. MONROE ST., CHICAGO



Style "H"

Modern Methods for Quick Work

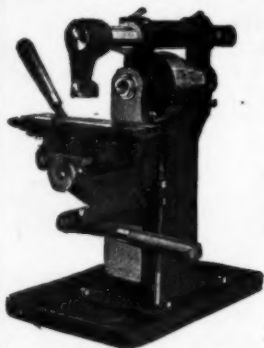


A DAVIS KEYSEATER

Motor driven,
will save you
valuable space
as well as in-
crease your pro-
duction. It is
an investment
you can't afford
to overlook.

Write for Circular

DAVIS MACHINE TOOL CO., Inc.
ROCHESTER, N. Y., U. S. A.



Burke's No. 3 Bench Millers

Are Seasoned Tools

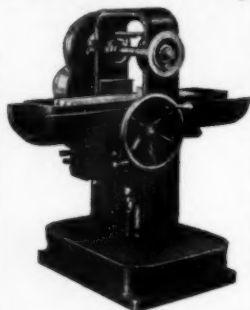
Our system of tests insures accuracy, and our methods of construction make it permanent. Frames and parts are carried 6 to 8 months, after work begins on them, before the completed tools receive our final O. K., and all parts are finished and fitted with exceptional care.

Longitudinal feed, 6 in.;
traverse feed, $3\frac{1}{2}$ in.; vertical
motion of knee, 8 $\frac{1}{2}$ in.; table
surface, 3 $\frac{1}{2}$ x12 inch.

Write for Catalog, which also shows larger and smaller sizes.

The Burke Machine Tool Co.
Conneaut, Ohio

Built for Heavy, Rapid Cuts



Briggs High Duty Milling Machine

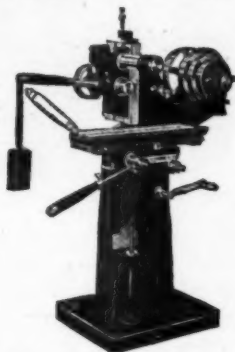
does gang milling of steel parts for guns, automobiles, etc., with such rapidity and accuracy that a substantial saving is practically assured. It is also ideal for general shop use.

No trouble to send you full details of the "Briggs"—a tool that takes heavy cuts in hard steel without any chatter.

A successful machine. Get acquainted now.

GOOLEY & EDLUND, Inc., Cortland, N. Y.

"Whitney"
Hand & Weight (feed) Milling Machine
Thousands In Use



The Sliding Head makes the vertical feed independent of the horizontal feed. This feature permits the work to be held close to the table and enables the machine to be used for profiling. As the head is accurately counterbalanced, light milling may be done on long and heavy pieces without danger of breaking cutters.

The spindle is driven by interchangeable side pulleys giving six spindle speeds with three grade cone and four with two grade cone.

The Table has Hand Lever Feed, also Crank Feed operated by Rack and Pinion.

The Pinion shaft is mounted in an eccentric bushing to allow for adjustment of pinion with rack.

The weight attachment feeds either head or table automatically and by varying the weights the pressure may be adjusted to a nicety.

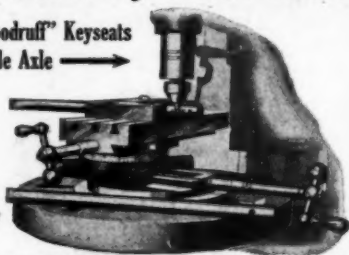
Prompt deliveries

The Whitney Mfg. Co., - Hartford, Conn.
Chains—Keys and Cutters—Hand Milling Machines

Mills On Any Drill Press

Cutting "Woodruff" Keyseats
In Automobile Axle →

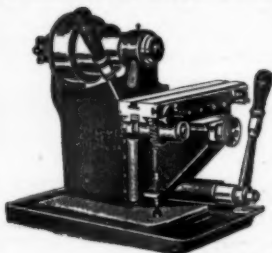
For the
Garage
Diemaker
Repair Shop
Pattermaker



The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reboring the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

Hinckley Machine Works, HINCKLEY, ILL.

Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

Send for descriptive circular

The Carter & Hakes Machine Co.
West Winsted, Conn., U. S. A.

AGENTS—for New England and New York, Hill, Clarke & Co.
WESTERN AGENTS—Marshall & Huschart Machinery Co.,
Chicago, St. Louis, Indianapolis.

Old Cutters Made New

Without Annealing or Altering Temper
And We Pay Express One Way

This side
shows after
recutting



This side
shows before
recutting

60% Off List for Milling Cutters

We recut Milling Cutters to the largest diameter by eighths, and to the greatest thickness by sixteenths of an inch, and mark them with your size. They are like new in finish, cutting quality and accuracy.



70% Off List on Woodruff Keyseat Cutters

We recut Woodruff Keyseat Cutters to the next smaller size, without annealing, so the shanks will remain standard.

Over 1,500 manufacturers are saving thousands of dollars annually through our service, and we want to save money for you. Send us a cutter you were going to scrap, or dig one out of the scrap pile, and let us return it to you as good as new. We guarantee all our work to give complete satisfaction.

Peninsular Tool Salvage Co.
Detroit, Mich.



Murchey Users

Get Chasers Promptly

Users of Murchey Tools get chasers when they want them. Do you? If not, we invite your investigation of our tools and our service.

The Murchey

Collapsing Taps and Self-Opening Dies

are guaranteed to produce accurate, uniform threads at the highest possible speeds, and for the longest time without repairs. The *efficiency* of Murchey Tools and the *promptness* of Murchey Service make a combination to tie to. Won't you put the proof up to us?

Murchey Machine & Tool Co., 58 Porter Street
Detroit, Mich.

NINE OF THESE



....., and to the junk heap with all those costly solid mandrels—wasters of money, time and space.

A set of nine "Nicholson's" affords an *instant fit* for any size round or square hole, between one inch and seven inches.

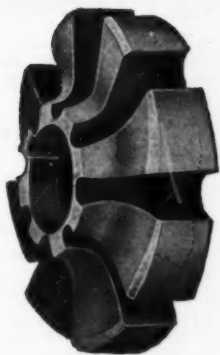
No more hunting around for a different mandrel for each job. Increased production simply *has* to follow.

Sounds good, doesn't it?

Why not bring it home? Give a Nicholson more than a mere "once over." Put one to a thirty day test—in your factory. That's the only place where its making good means most to you. And it *will* make good, and you'll be glad you read and answered this ad.

NICHOLSON Expanding Mandrels

W. H. NICHOLSON & CO.
117 Oregon St., Wilkes-Barre, Pa.



Being Able to Produce

Quickly and accurately, are some of the many reasons for the steadily increased demands for our

SPECIAL CUTTERS

SEND US BLUE PRINTS OR TEMPLETS
FOR QUOTATIONS

**The Cleveland Milling
Machine Company**

18511 Euclid Ave. Cleveland, O.



It Is Easy To Get Tapers Right

—if you are able to see at a glance, first, when they *are* right; and second, where every inaccuracy is located, so it *may be made* right.

Hartford Taper Gages

—are simple, inexpensive, accurate devices which perform that service for you, easily and quickly. One concern, after testing one, now has 32 in various departments. They wouldn't be without them, and neither would you after you find how they save time and promote accuracy.

You are next. Your address?

Hartford Special Machinery Co.
285 Homestead Ave., Hartford, Conn.

Fast, Perfect Riveting

Noiselessly Done

THE GRANT Noiseless Rivet Spinning Machine is so simple that a boy or girl can handle it.

One Rivet a Second

ITS SPEED is one rivet per second, and each rivet is headed with whatever tightness or looseness is desired. Every rivet head is perfectly formed, with a highly polished surface, free from hammer or tool marks.

A wonderful producer of uniform, highly finished work, and cheap help can operate it.

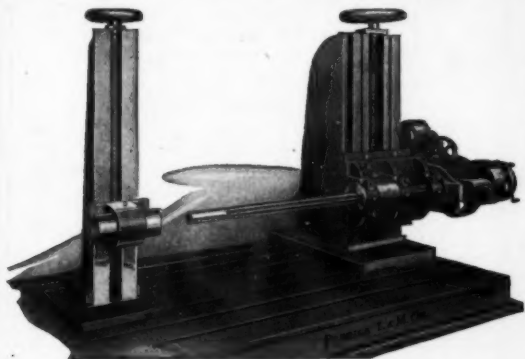
The catalog explains. Want it?



The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Some Machines Have To Be Sold

But the Pedrick Column Boring Machine is selling itself



From the size of the illustration you may think the machine small, but it isn't. The column is a strong, husky casting over 5 ft. high, weighing 3000 lbs.

The simplicity, the power and the wide boring range are features that have popularized this machine. The two movements of the boring bar (1) with bar traveling or (2) a cutterhead traveling along the bar are unusual and very adaptable.

*It will pay you to learn more of this new machine
and we have a circular ready to send*

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Mfrs. Portable Boring Bars, Crank Pin Machines, Pipe
Benders, Portable Millers, etc.

BALL AND ROLLER BEARINGS

All Types and Makes in Stock or to Order

English (Inch) and Metric Dimensions

BALL THRUST

JOURNAL ROLLER

ROLLER THRUST

TAPER ROLLER

ANNULAR (Ball Journal)

PRESSED STEEL

STEEL BALLS

Sole Distributors for the U. S. of

The Bowden Patent Wire Mechanism

Bowden Wire Ltd., London

THE GWILLIAM COMPANY

Engineers

MECHANICAL SPECIALTIES

253 W. 58th St. (at Broadway), New York, N. Y.

Branch Office: 1314 Arch St., Philadelphia

Abbott Steel Bearing Balls

High Grade—Highly Finished



We shall be glad to have your inquiries and make estimates

The Abbott Ball Company

Elmwood District, Hartford, Conn.



Spring Foot Press No. 105

Uniformity of Blow Vibrationless Non-Fatiguing

Circular No. 105

Describes It



The Taylor & Fenn Company
Hartford, Conn.

LUCKY If You Can Use Cranes

One Canton Does Work of 6 to 10 Men



Labor is scarce and getting scarcer. You are fortunate if you have much lifting and lugging to do because

"The Handiest Tool In the Shop"

will take care of the heavy castings and machinery—do it all with perfect safety. Many sizes to choose from.

Write today for Booklet E-8

CANTON FOUNDRY & MCHE. CO., Canton, O.

ELECTRIC EUCLID HOISTS

Let OUR Engineers Save YOUR Time

It is possible that you realize the need of modern material handling equipment but cannot spare the time or men to work out the details.

Our engineers are constantly solving these difficulties and helping manufacturers reduce expenses.

Furthermore, this service is absolutely free.

Will you take advantage of it?

The Euclid Crane & Hoist Co.

Dept. C

EUCLID, OHIO, U. S. A.



A Modern Store Room—Terrell Equipped

Steel Factory Fixtures

Safe, Economical, Enduring

Everybody admits them to be the best; we can show you that in the long run they are the cheapest.

Yes, your investment is a trifle more to begin with; but steel begins saving right away, while wood begins losing, so that in a short time the balance shifts, and presently your wood outfit is practically worthless, while your steel equipment maintains its cost value.

Decreased fire insurance and fire risk, economy of space, easier and quicker handling of stock and supplies, ready adjustment of bins and shelves to meet varying needs—these are advantages which steel gives you every day.

*Prices, details, plans, expert planning service,
information— all at your service.*

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.



Nestor Vise

Here are its Features:

Work is gripped almost instantaneously—moves from maximum to minimum with quick action sliding jaw.

For size and weight an extraordinary gripping range is provided.

Hole can be drilled at right angles without taking work from vise.

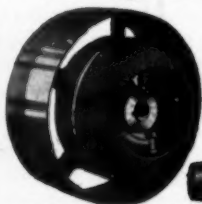
Special provision makes it impossible for jaws to cock up. Immediate delivery.

Write for particulars, sizes and prices

Nestor Manufacturing Co., Inc.
40 W. 13th St., New York City

Want A Clutch That's Right?

The "Edgemont" Has Stood Every Test



Enclosed Type, Self-Oiling

EDGEMONT Friction Clutches have passed out of the experimental stage. They are a known quantity.

They have been used for years by the leading machine tool builders (names on request), and have done all that was required of them. No clutch could do more. **THEY ARE RIGHT.**

Write for catalog and names of prominent users

The Edgemont Machine Co.
Dayton, Ohio

Special Clutches and Transmission Machinery for all purposes

Production and Safety

The Profitable Combination Found in
Bignall & Keeler Modern Pipe Machines



(No. 4 Peerless. Belt Drive. All Gears are Covered).

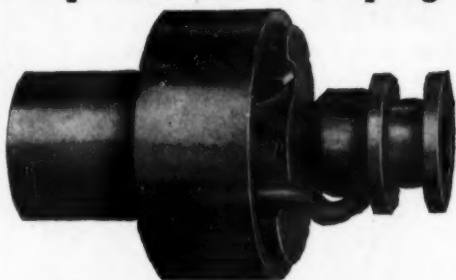
THE CONTINUED SUCCESS of any machine demands that it be kept up-to- or a little ahead-of-date. B. & Ks. will bear critical examination in this respect. Every one of them is equipped with a gear box drive for obtaining the right threading speed, which obviates all uncertainty or guess work in selecting the proper speed for threading each size of pipe.

The cutting-off tool is made of beveled high speed steel, which requires no reforging. Bolt dies can be furnished in the smaller machines. The dies can be changed without removing a screw, and when the die is removed, the die slot can be cleaned without removing the cover.

*There are more good points. Circulars
and complete data mailed on request.*

Bignall & Keeler Machine Works
Edwardsville, Ill.

Expansion Clutch Coupling

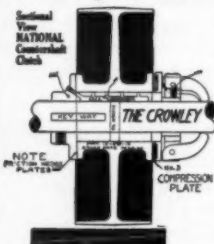


Conway & Company

2509 Beekman St., Cincinnati, Ohio

Manufacturers of Friction Clutches since 1895

Crowley Friction Wedge Clutches



No. 1—Circular oil chamber keeps clutch freely lubricated at all times.

No. 2—Transversely Tapered Friction Plates, used only in National Clutches.

No. 3—Compression Plate; no pulling power on these plates, used only as a cushion.

No. 4—Three toggles, giving equal pressure on compression Plates; spider containing fingers, threaded on Hub No. 5, making Clutch self-contained.

No. 5—Hub which is keyed to shaft.

No. 6—Shows the wedge shape of the plates that give National Clutches their enormous pulling power; rugged, compact, simple; no springs or any weak part in this clutch.

A number of Machine Tool builders have adopted this as their Standard—WHY NOT YOU?

National Clutch Co., 1859 Fulton St., Chicago, Ill.

Alert Roller Grip Stub Arbors



Be up to the minute! Get a 25% increased production! Adopt ROLLER GRIP STUB ARBORS for your work. Don't waste your time driving Mandrels in and out of your work, let a ROLLER GRIP do it. Forget your arbor press. Stub Arbors made in all sizes.

Send for circulars (SA).

Alert Tool Company

237 North 6th St.,

Philadelphia, Pa.

Contract Work Wanted

This department is exclusively for the use of those desiring to secure contracts for anything in the line of foundry or machine work, including press work, dies, jigs, fixtures, gears, die castings, drop forgings, screw machine products, springs, bolts, nuts, rivets, etc. Advertisements are to be set with side headings as shown, and with such display as may be appropriate to the copy used. Rates: one-eighth page, per month, \$4.

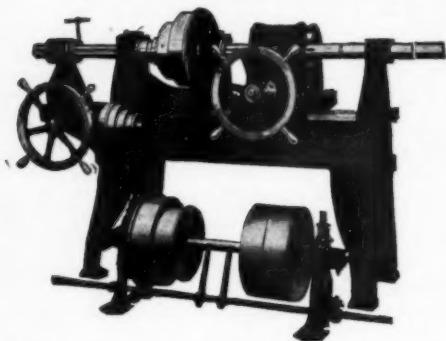
<p>Gauges, Jigs Dies, Tools and Light Machinery</p>	<p>The Model Tool & Gauge Co. 185 John St., Bridgeport, Conn. Quick deliveries on gauges, jigs, dies and tools. Light machinery built on contract. Send us your specifications. We shall be pleased to quote.</p>
<p>Dies, Tool General Machine Work</p>	<p>Chicago Die & Machine Works 415 N. Carpenter St., Chicago, Ill. We are equipped to render satisfactory service on all kinds of general machine work. No job too big or too difficult. Established 1876.</p>
<p>Patterns</p>	<p>W. J. Nobach Pattern Works 411-13 S. Clinton St., Chicago Our specialty is "Patterns" of wood, brass, aluminum match plate and for moulding machines of all description. You no doubt know the present condition of business which renders it almost impossible to get first class Pattern Makers, but we are abreast with the situation here.</p>
<p>Sheet Metal Stamping Dies and Tools</p>	<p>Walter L. Schultz 6432 Nordica Ave., Chicago, Ill. We solicit your inquiry for sheet metal stamping. Manufacturing a specialty. You get the benefit of our low overhead expense.</p>
<p>Dies Tools Special Machinery</p>	<p>Robbins, Gamwell & Co. Pittsfield, Mass. Accuracy and efficiency in gages, dies and special machinery, is our specialty.</p>
<p>Machine Work and Screw Machine Products</p>	<p>Joseph W. Hager 92 Frelinghuysen Ave., Newark N. J. Let me estimate on your requirements. Send blue-prints and specifications.</p>
<p>Gray and Malleable Iron Castings Die Castings</p>	<p>Lough Brothers 90 West Street, New York City Gray iron castings, one ounce to twenty tons. Malleable iron castings. Die castings in aluminum, tin and zinc alloys.</p>

CONTRACT WORK WANTED

<p>Dies, Tools Automatic Dies and Sheet Metal Products</p>	<p>Nelson Tool Company, Inc. No. 781 East 142nd Street, New York City</p> <p>We are well equipped to manufacture sheet metal articles made in automatic dies and machines.</p>
<p>Dies, Gauges Jigs and Fixtures</p>	<p>A. N. Van Deman 95 William St., New York City</p> <p>Model and experimental work; special machinery built to order; contract manufacturing. Finished parts, of intricate shapes, accurately produced from electrolytic copper</p>
<p>Bronze, Brass and Aluminum Castings</p>	<p>Humphrey Bronze Co. Bellefontaine, Ohio</p> <p>Bronze, brass and aluminum castings of the highest quality. Auto and aeroplane work a specialty. Send for estimates.</p>
<p>Machine Work</p>	<p>The Scott & Ewing Co. Bluffton, Ohio</p> <p>Wanted, machine work; good gray iron foundry connection. Mail us your blue prints for estimates.</p>
<p>Screw Machine Products</p>	<p>Litquick Gas Lamp Co. Defiance, Ohio</p> <p>We are in position to take on additional contracts for screw machine work, which our location, facilities and labor supply enable us to handle promptly and at attractive figures. Send your blue-prints.</p>
<p>Drop Forgings (All Kinds)</p>	<p>Bonney Vise & Tool Works, Inc. Allentown, Pa.</p> <p>Quick and Accurate Drop Forging and Finishing</p> <p>Good tools, good men, and good management insure precision and promptness. Investigate; when you know our facilities and our record you'll want our service.</p>
<p>Brass Die Castings Cored Brass and Gray Iron Castings</p>	<p>The Fulton Company Knoxville, Tenn.</p> <p>We are furnishing the U. S. Government and are prepared to make in quantities brass (not white metal) die castings of high tensile; also cored brass and gray iron castings (matched board) up to six to eight lbs.</p>
<p>Pressed and Stamped Steel Parts</p>	<p>Geuder, Paeschke & Frey Co. 1325-1700 St. Paul Av., Milwaukee, Wis.</p> <p>It will pay you to let us figure on such pressed, stamped or drawn metal articles or parts as you may require, be they made of steel, aluminum, brass or copper. Our 15-acre plant at your disposal. Get the benefit of our "Knowing how since '81." Send samples or blue prints for est.</p>

No Skilled Labor Necessary

Underwood's Armature and Axle Bearing
Borer Saves Time and Labor Costs



IT WAS DESIGNED primarily for boring babbitted bearings of electric railway armature and axle shafts, but its usefulness is not at all limited to this class of work. We have embodied a wide range of utility without any complication, and for that reason the machine will save time and money wherever it can be used.

This rapid and accurate tool will chuck and bore a split box in less time than any other machine made. Automatic feed, three changes; bores up to 18 in. outside diameter, and 25 in. long. Our line of Portable Tools includes:

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; armature and axle bearing borers; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; rail saws; motors, etc.

Glad to send you Circulars. What is your problem?

H. B. Underwood & Company

1016-22 Buttonwood St., Philadelphia, Pa.

Second-Hand Machinery.

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue. Minimum charge, **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. No display in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you require is not listed, use the blank enclosed to make known your wants to the publisher.

WANTED BY

South Bend Machine Tool Co., - - - **South Bend, Ind.**

BORING MACHINE.

Second-hand boring machine wanted, one with 3" bar to bore a 5" hole in the center of 25" circle. Bar feed need not exceed 8 inches.

FOR SALE BY

J. L. Lucas & Son,

No. 8 Fox St., Bridgeport, Conn.

HEAVY LATHES

Eight 20"x34" Roulsted engine lathes, d. b. g., compound rest, 2" hollow spindle, new change gears; very heavy; fine for shell work. Price, \$550 each, overhauled. Send for photo.

FOR SALE BY

Machineshop Equipment Corp'n,

170 Oliver St., Boston, Mass.

Grinders, 12"x42" Landis plain, (2).

Flanging press, platen 10"x2", with hydraulic pump, for 4,000 lbs. pressure.

Planer, 16x16x36 P. & W.

Rotary shears, 8" capacity, 30" throat.

Squaring shears, 8" capacity, blades 100" long.

Also Drills, Shapers, Lathes, Milling Machines, Planers, Grinders, etc.

FOR SALE BY

Broadway Machinery Co.,

236-238 Broadway, Cincinnati, Ohio

LATHES.

12"x 4' Sterling, c. r. & h. s.

16"x 6' Flather, c. r. & h. s.

16"x 8' Rockford, c. r. & h. s.

18"x 8' Mueller, c. r. & h. s., taper

20"x10' Johnson, compound rest.

22"x10' Niles, compound rest.

22"x12' New Haven, comp. rest.

30"x14' Fitchburg, compound rest.

PLANERS AND SHAPERS.

30"x30"x7' Lodge & Davis, 1 head.

24"x24"x8' Lodge & Davis, 1 head.

20" Smith & Mills b. g. crank.

20" Niles b. g. crank.

GRINDING MACHINES.

Brown & Sharpe, planer type, (2).

Bath universal grinders, (2).

DRILL PRESSES.

24" Bickford, b. g., sliding head.

24" Milwaukee, b. g., sliding head.

26" Prentiss, b. g., sliding head.

24" Quint turret drill.

MISCELLANEOUS.

Bolt cutter, 3-sp. 1 1/2" Landis.

Gear cutters, 30" auto., (2).

Hammer, 80 lb. Bradley helve.

Punch, b. g., No. 4 Long & All.

Punch, fly-wheel, No. 2 L. & A.

Turret, No. 3A Warner & Swasey universal, 4 1/2" h. s.

Turret, 21"x8" Gisholt, 3-step, 2" h. r.

SECOND-HAND MACHINERY

FOR SALE BY

Stocker-Rumely-Wachs Co., 117-121 N. Jefferson St., Chicago
Used Machinery. Immediate Delivery.

DRILLING MACHINES.

20" Sibley.	2-spindle W. F. & J. Barnes.
30" Lodge & Davis, s. h., back gear, power feed.	4-spindle Prentice.
No. 310 Baker heavy duty.	No. 11 Pratt & Whitney, 10 spindles.

GEAR CUTTERS.

No. 1 Schuchardt & Schutte gear hobber.
24"x7" Gould & Eberhardt, for spur gears.
No. 2 26" Brown & Sharpe, for spur gears.
30"x9" Gould & Eberhardt, spur and bevel.
38"x9" Gould & Eberhardt, spur and bevel.
26" Walcott, for spur gears.

GRINDERS.

No. 1 Cincinnati, univ. tool & cutter.	No. 2 Landis universal.
No. 1½ Cincinnati, cutter and tool.	No. 6-A Diamond universal.
Brainard, cutter.	No. 6 Modern internal.
Leland universal, with power feed.	No. 15-C Besly pattern makers disc.
No. 1½ Landis universal.	

LATHES.

10"x5' LeBlond, compound rest, with chuck.
14"x6' Hamilton, compound rest, chuck.
15"x8' Rockford Tool Co., compound rest.
15"x6' Prentice, compound rest.
16"x8' Bradford, compound rest.
18"x8' Bradford, compound rest.
18"x8' Lodge & Shipley, patent head, compound rest, taper attachment.
20"x14' Blaisdell, compound rest.
21"x12' New Haven, compound rest.
24"x27"x14' Lodge & Shipley select geared head, q. c. g., 18" chuck fitted.
24"x27"x12' Reed-Prentice, geared head, single pulley drive.
32"x12' Schumacher & Boye, 26" chuck fitted.

PLANERS.

36"x36"x14' Sellers, 1 head. | 39"x39"x12' New Haven, one head.

SCREW MACHINES.

No. 1 Warner & Swasey, plain head.
No. 2 Pratt & Whitney, friction head.
No. 3 Pratt & Whitney, b. g., double fric. head, a. c. and w. f.
No. 3 Bardons & Oliver, plain head, a. c. and w. f.
No. 4 Pearson, friction head, a. c. and w. f.
No. 5 Foster, geared friction head, auto. chuck, power feed to turret slide and power feed to cross slide.

TURRET LATHES.

No. 2 Foster-Kimball, plain head.	2"x24" Jones & Lamson, cone head.
16" Lodge & Davis, back geared.	21" Gisholt, motor drive, 5 horse power, 220 v., d. c. motor.
16" Warner & Swasey, friction head.	

PUNCHES AND PRESSES.

No. 2 Rockford, o. b. i.	No. 4-T American Can, double crank, 8" stroke.
No. 20 Thiem, o. b. i.	Blake & Johnson, embossing.
No. 3 Loshbough-Jordan, o. b. i.	No. 3½ Bliss double geared toggle drawing press.
No. 3 Loshbough-Jordan, o. b. i.	
No. 4 Rockford, o. b. i.	
No. 4 American Can, o. b. i.	

MISCELLANEOUS.

Boring mill, No. 2 Rockford horiz.	Die slotter, Garvin.
Cutting-off machine, 4" Nutter & Barnes.	Miller, No. 1½ Brown & Sharpe, pl. Miller, No. 7 Becker, Lincoln type.

SECOND-HAND MACHINERY

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

Machine Tools.

LATHES.

- 10"x 4' new Climax.
- 13"x 7'6" new Carroll-Jamieson.
- 14"x 6' new Carroll-Jamieson, quick change.
- 14"x 6' Reed.
- 15"x 6' new Sidney, d. b. g., quick change, swing 17" over shears.
- 16"x 6' Hamilton, turret on shears.
- 16"x 6' Reed.
- 17"x 8' new National, quick change.
- 17"x 8' new Sidney, d. b. g., quick change, swing 21" over shears, (4).
- 19"x 8' new Sidney, d. b. f., quick change, (6).
- 20"x10' Blaisdell.
- 20"x12' Schumacher-Boye.
- 24"x20' Reed.
- 24"x10' new Carroll-Jamieson.
- 28"x13' Harrington.
- 32"x24' Fay & Scott, raising blocks to 53".

SCREW MACHINES.

- 3"x36" Jones & Lamson, (2).
- 2" Cleveland automatic.
- 24" Gisholt, motor driven.
- 14"x5' Lodge & Shipley, wire feed.

DRILLING MACHINES.

- 20" Rockford, high duty, (2).
- 36" new Superior, sliding head.
- 32" new Superior, sliding head.
- 28" new Superior, sliding head.
- 23" new Superior, sliding head.
- 28" new Superior, sliding head, with tapping attachment.
- 20" new Superior hi-speed.
- 30" new Superior.
- 16" new Superior hi-speed.

RADIAL DRILLS.

- 5' Bickford, speed box drive.
- 4' Dreses, speed box drive.

PLANERS.

- 40"x36"x12' Betts, one head.
- 36"x36"x10' Gray, two heads.
- 36"x36"x 8' Hamilton, two heads.
- 36"x36"x 8' Gray, two heads, (3)
- 30"x30"x10' Bement, two heads.
- 27"xx23" 6' Putnam, one head.
- 24"x24"x 6' Pond, one head.

SHAPERS.

- 24" new Steptoe, b. g.
- 20" new Steptoe.
- 14" Traveling head.

MILLING MACHINES.

- No. 2 new Kemp Smith universal.
- No. 1½ new American plain.
- Kemp Smith, b. g. plain, table 32"x 64", with index head.
- No. 0 new Steptoe, b. g., pwr. fd.
- No. 0 new Steptoe hand.
- No. 3 new Burke bench.
- Beaman & Smith vertical spindle, table 24"x6'.

GRINDERS.

- 10"x20" Bath universal.
- 8"x18" Landis plain.
- Landis internal grinder.
- No. 2 new Grand Rapids universal cutter, drill and tool.
- No. 190 new Wells univ. tool and cut.

PIPE AND BOLT MACHINES.

- 2" Jarecki pipe machine.
- 4" Saunders pipe machine.
- 8" Saunders pipe machine.
- 1½" new Wells bolt machine.
- 2" Howard bolt machine.

HAMMERS.

- 600 lb. Morgan, single frame steam.
- 250 lb. new Little Giant, belt.
- 100 lb. new Little Giant, belt.
- 50 lb. new Little Giant, belt.
- 25 lb. new Little Giant, belt.

PUNCHES AND PRESSES.

- 18" thrt. Industrial dbl. end punch.
- 8" throat geared punch.
- No. 20 Excelsior punch.
- No. 1-C Badger shear.
- No. 130 new Max Ams press.
- No. 126-A new Max Ams press.

MISCELLANEOUS.

- Automatic threading lathe, 16"x10'.
- Broaching press, 30-ton Watson-S.
- Gear cutter, 8" Dwight auto.
- Pitt lathe, 7' swing.
- Profilers, No. 3 Garvin, (3).

SECOND-HAND MACHINERY

FOR SALE BY

McCoy-Brandt Machinery Company

Office and Warehouse, 216-218 Penn Ave., Pittsburgh, Pa.

Air drill, Chicago No. 1, chuck.
 Drill press, 29" sliding head.
 Gas engines, 12 h. p. New Era; 30 h. p. Struthers-W., horizontal.
 Grinder, No. 10 Brown & Sharpe, plain, belted.
 Grinder, No. 13 B. & S., universal and tool.
 Hammers, 35 lbs., 40 lbs. and 90 lbs., belted.
 Lathes, 24"x15" Fildfield; also New Haven; h. s., cone.
 Miller, No. 24 Oesterlein universal, index centers.
 Miller, No. 4 Garvin plain, cone driven.
 Miller, No. 14 American plain, cone driven, new.
 Miller, No. 1 U. S., hand, new.
 Miller, No. 1 Hickett horizontal, new.
 Miller and profiler, No. 0 Bickett vertical, new.
 Pipe machines, 2", 6" and 8".
 Planer, 74"x52"x24" Pond, single head, old, cheap.
 Planer, 22"x22"x4" Pond, single head.
 Radials, 24" Foadick; 3" Bickford, also Canedy.
 Rolls, bending, 6" H. & J. No. 1, cap. 4".
 Rotary planer, 36" Cleveland, motor drive.
 Saw, cold, 27" O. & C., cap. 15" beams or 8" rounds.
 Saw, cold, 26" Newton, belt driven.
 Saw, No. 2 Thompson, metal jig.
 Thread rollers, 1" Waterbury-Farrell.

FOR SALE BY

The Osborne & Sexton Machinery Co.,

Columbus, Ohio.

LATHES.

9" to 13" Barnes, comp. rest, new.
 13-15-16 and 18 O. & S., h.s., c.r., new.
 14"x 6" Hamilton, h. s., comp. rest.
 15"x 6" Bradford, power feed turret.
 18"x 6" Mueller, turret on shears.
 18"x 8" Prentice, geared head.
 18"x 8" Hamilton, dbl. bk. gr., new.
 20"x 8" Prentice, geared head, (2).
 21"x10" South Bend, h. s., c. r.
 22"x10" Hamilton, dbl. bk. gr., new.
 24"x12" South Bend, h. s., cp. r.
 26"x12" Star, c. r.

TURRET LATHES AND SCREW MACHINES.

1" Garvin hand screw machine.
 11" S. & K. hand screw machine.
 11" Wood hand screw machine.
 11" S. & K. hand screw mchs., (2).

SHAPERS AND PLANERS.

16, 18 & 24 Barker, crank, new.
 24"x24"x6" Sellers.
 24"x24"x 6" Lodge & Davis.
 36"x36"x18" Sellers.

PRESSES.

No. 1 Hibbard o. b. l., nearly new.
 Perkins, dbl. housing, 16x24.
 365 Bliss, toggle drawing, 42,000 lbs.

DRILLS AND RADIALS.

Henry & Wright agl. spdl., high spd.
 31" Canedy-Otto radial, plain, new.
 42" Plain radial, Baush.
 Hydraulic, 27" bet. uprights.
 500-ton hydraulic, with pump.
 Foot, various sizes.

MILLING MACHINES.

No. 14 Valley City universal, new.
 No. 14 Valley City plain, new.
 Cincinnati plain, 24"x7"x19".
 Garvin, hand and power, 15" travel.

GRINDERS.

10"x36" Landis universal.
 8"x36" Hartford, surface.
 Grand Rapids, cutter and reamer.
 Wilmarth & Morman, cut. and ream.

MISCELLANEOUS.

Band saws, metal, 30" Wright, (2).
 Borer, 42" car wheel, with hoist.
 Boring mill, 32" Baush, turret hd.
 Cut-off machine, 3" Davis.
 Keyseater, Baker Bros. 14" keyways.
 Motors, 1 to 50 h. p., 220 v., 3 phase.
 Squaring shear, 30 & 36", 20 gauge.

SECOND-HAND MACHINERY

FOR SALE BY

Henry Prentiss & Company, Inc., Singer Bldg., New York

Formerly

Prentiss Tool & Supply Company

BORING MACHINES.

2-spindle Moline adjustable center cylinder borer.

DRILLING MACHINES.

1-spindle Henry & Wright ball bearing, sensitive, 24 swing.
4-spindle Woodward & Rogers.
4-spindle Barr.
42" Hamilton radial.
No. 310 Baker Bros.

28" Blaisdell, sliding head.
36" Bickford plain radial.
54" Baush post radial.
28" Sibley & Ware.
10 spindle Gardam adjustable.
No. 13 Natco multiple, 10 spindles.

GRINDERS.

BX Yankee tool grinder.
12x60 Landis universal.
No. 60 Heald cylinder.
No. 2 Garvin hole grinder.
6x32 Norton plain.
No. 60 Gardner double ring wheel.

No. 6 Bryant internal.
18-30x96 Norton.
No. 11 Rivett, oscillating.
6x48 Pratt & Whitney.
No. 2 Oesterlein universal.
"H" Point Yankee twist drill.

LATHES.

11"x4' Mann.
12"x5' Garvin.
16"x8' Porter, compound rest, power cross feed.
16"x 6' Automatic threading.
18"x10' Schumacher & Boye.
18"x 8' Rahn-Carpenter, compound rest, power cross feed.
18"x8' American, compound rest, quick change, taper attachment.

28"x14' Pond, compound rest.
22"x10' Lodge & Shipley, selective head, (2).
26"x14' Gleason, compound rest, power cross feed.
36"x14' Pond, compound rest, power cross feed.
44x16 Niles, double back geared.
36"x24' Wood Light.
84"x30' Putnam.

MILLING MACHINES.

No. 1 Kempsmith, universal.
Nos. 2 and 4 Cintl. plain.
Rivett swivel miller.
No. 2 Garvin hand miller.
No. 3 Garvin plain.

No. 4 Burke bench miller.
Grant manufacturing.
No. 3 Reed plain.
No. 2 Pratt & Whitney hand.
No. 2A Garvin plain.

PLANERS.

26"x26"x 6' Lodge & Davis.
25"x25"x10' Sellers, 1 hd.

26"x26"x 5' Pond.
36"x36"x14, Lodge & Davis, 2 hds.

SCREW MACHINES.

11" No. 54 National Acme auto.
20x7 F. & S. universal turret.
15x6 Windsor turret.
20" Jones & Lamson, single pulley drive.
2" Cleveland automatics, (32).

2x24 Jones & Lamson.
No. 7 Bardons & Oliver.
1" Rivett, wire feed.
1" Pratt & Whitney.
1" National-Acme automatic.
1" Rivett, plain turret.

MISCELLANEOUS.

Brake, 4' Ohl, double cam.
Broaching machine, No 3 Lapointe.
Gear cutter, 26x10 Cincinnati.
Gear cutter, No. 2 Whiton.

Keyseater, No. 1 Davis.
Pinion cutter, No. 1 Slate.
Shaper, 24" Hendey.
Shaper, 24" Flather.

SECOND-HAND MACHINERY

FOR SALE BY

Colman Machinery & Tool Co., Inc. 38 Park Row, New York, N. Y.
Telephone, 5957 Cortlandt.

Axle lathe, 13x8 Niles-Bement-Pond, single head; new.
 Axle lathe, Niles-Bement-Pond, No. 210.
 Bolt cutter, 2" Landis, complete with carbon chasers; new.
 Boring mill, No. C-54 Niles-Bement-Pond, horizontal.
 Compressors, Chicago Pneumatic Tool Co., belt driven; new, (2).
 Gap lathe, 36-60", 8" center to center; used.
 Hammer, 1100 lb. Bement standard, with dies and anvil.
 Hydraulic wheel press, 100-ton Watson-Stillman, hand power; new.
 Lathe, 26"x16" Bridgeford, single pulley drive, heavy pattern; new.
 Milling machine, No. 3 Kempsmith universal; new.
 Milling machine, No. 3 Cincinnati universal; new.
 Punch and shear, single end, No. 13 Williams & White, complete with angle shearing attachment; new.
 Screw machine, No. 6 Warner & Swasey; new.
 Shapers, 15" Hendey; new, (2).
 We have a large list of Boring Mills and Planers. Send for our list.

FOR SALE BY

Homer Strong, 301-307 State St., Rochester, N. Y.
Branch Offices: Syracuse, Buffalo, Albany.

PUNCH PRESSES—NEW.

No. 24 Tol. o. b. i., wt. 1750 lb., (2). No. 4 Toledo, o. b. i., wt. 3000 lb.
 No. 34 Toledo, o. b. i., wt. 2500 lb. No. 5 Toledo, o. b. i., wt. 4000 lb.

PUNCH PRESSES—USED.

No. 5 Niagara, o. b. i., Jones guard, like new. No. 2 Niagara, bench inclinable, with guards, (2).
 No. 65 Bliss dlb. acting cam press. Mutchler optical bench presses, (2).

GEAR CUTTERS—USED.

No. 3 Brown & S. 26x8 auto., (2). Preceding just like new, 1 year old.
 No. 3 Brown & Sharpe, 36x8 auto. 36" No. 6 Fellows spur gear cutter.

MILLING MACHINES—NEW.

42" No. 15 Garvin plain, b. g. No. 3 Rockford plain, hand.
 No. 0 Rockford plain, (2). U. S. hand millers, arbor & vise, (2).

GRINDERS—NEW.

Model A Fitchburg pl., p. f., 6x20. No. 1 W. & M. universal power feed, 10x30, (2).
 No. 2 Reid surface grinders, (2). Greenfield tool and cutter.

GRINDERS—USED.

No. 2 W. & M. auto. surface 6x20 fine condition. Style P-O W. & M. drill grinder.
 No. 190 Wells tool and cutter. 30" No. 50 Gardner disc grinder, serial 5029, like new.

DRILL PRESSES—NEW.

34" W. F. & J. Barnes, sliding head with geared tapper, (3). 20" W. F. & J. Barnes, sq. base, plain, l. & w. feed, (6).
 34" W. F. & J. Barnes, sliding hd., b. g. self feed. 15" No. 7 W. F. & J. Barnes, (6).
 26" W. F. & J. Barnes, sliding hd. 8" Kern h. s., b. b. drills.
 20" W. F. & J. Barnes, sliding hd., b. g., self feed, (6). No. 1 Knight drilling & milling mch.
 20" No. 5 Buffalo, b. g. 1 spindle Avey high-speed b. b., (2).
 4 spindle Kern high-speed b. b. U. S. sensitive drills, (3).

SCREW MACHINES—NEW.

No. 6 Foster, geared friction head, power feed to turret, 2 1/2 cap., (3).
 No. 4 Foster, geared friction head, power feed to turret, 2 9-16 cap., (3).
 No. 24 Garvin, geared friction head, power feed, to turret, 1 7-16 cap.
 No. 0 Foster, plain head, wire feed to turret, 9-16 capacity.

TAPPING MACHINES—NEW.

No. 2-X Garvin automatic tapping machines, (4).

RADIAL DRILL—USED.

34" W. E. Gang plain radial, with countershaft.

SECOND-HAND MACHINERY

FOR SALE BY

J. J. McCabe,

149 Broadway, New York

PLANERS.

24" wide, 24" high, 6' table, Gray Co.
 26" wide, 26" high, 8' table, Pond.
 26" wide, 26" high, 8' table, Gray Co.
 30" wide, 30" high, 6' table, Pond.
 36" wide, 36" high, 8' table, Whitcomb.
 36" wide, 36" high, 12' table, Niles.
 44" wide, 24" high, 10' table, Rochester.

UPRIGHT BORING MILLS.

32" swing, turret-head, chasing attachment, Colburn.
 36" swing, turret-head, Brown & Sharpe.

HORIZONTAL CYLINDER BORING MACHINE.

No. 2 Barrett, with 5" boring-bar—automatic feeds in either direction, 48"—having capacity for boring and facing both ends of cylinder at the same time, complete with auxiliary cross table and lot of tools, in absolutely A-1 condition, like new.

RADIAL DRILLS.

New, 2½, 3½ and 4' arms, tapping attachments, speed-box, single pulley drive. | 2½' arm, tapping attachment, Dreses.
 3½' arm, tapping attachment, Dreses.

SHAPERS—NEW.

32" stroke, back-geared, speed-box. | 25", 20" and 16" back-geared.
 28" stroke, back-geared, speed-box. | 16" and 12" plain.

UNIVERSAL GRINDER.

Swings 12", takes 66" between, in thoroughly good condition. Landis Tool Co.

MILLING MACHINES.

Planer type, 24" wide, 12' table, Bement-M. | Planer type, 24" wide, 6' table, Ingersoll.
 Vertical, No. 3 Becker. | Lincoln type, table 28"x7".

NEW HEAVY HIGH DUTY LATHES.

All-steel quick-change gear-box, 3-step cone, double back-gears. | 21" swing, 10' and 12' beds.
 16" swing, 6', 8' and 10' beds. | 24" swing, 12', 14', 16' and 18' beds.
 18" swing, 8', 10' and 12' beds. | 26" swing, 12', 14', 16' and 18' beds.
 29" swing, 16' bed.

FLAT TURRET LATHES.

3x26" sliding-head, chucking equipment.
 2x24" bar equipment.

TURRET LATHES.

20" Potter & Johnston, full automatic.
 21" Gisholt, gap style.
 40" American, hollow spindle, 3¼" hole.

SCREW MACHINES.

¾" wire feed, Garvin. | 1¼" Bardons & Oliver.

SLOTTER AND KEYSEATER.

30" stroke, Baker.

GEAR SHAPER.

36" Fellows, with cutters.

SHAPER.

Traveling head, 12" stroke, Sellers.

COLD SAW.

6" capacity, Espen-Lucas.

CUTTING-OFF MACHINE.

Double end, 10", Bement-Miles.

HAMMERS.

Steam, single frame, 2500 lb. Bement-Miles.
 Drop, 600 lb. belt lifter, Williams & White.

PUNCH.

14" throat, Cockburn.

SHEAR—ROTARY SPLITTING.

30" gap, Lenox.

SECOND-HAND MACHINERY

FOR SALE BY

B. C. Allen Machinery Co.,

Chucks, 4, 6, 10, 15, 20".....	
Drill, 14", 2 tables.....	\$ 55.
Drill, 21", w. and l.....	55.
Drill, 24", w. and l.....	100.
Drill 24" b. g., p. f.....	150.
Drill, 30", sliding head.....	375.
Drill, Prentice, 7' radial.....	7500.
Grinder, 12" emery.....	15.
Hack saws.....	10 and 12.
Keyseater, 4" No. 2 Davis.....	95.
Lathe, 12"x5' Reed.....	135.
Lathe, 14"x8' Lodge & Davis.....	300.
Lathe, 18"x6' Perkins, 10" ck.....	325.
Lathe, 20"x12' Fitchburg 12" ck.....	375.
Lathe, 24"x9' Pratt & W., taper.....	625.

1000 W. Randolph St., Chicago

Lathe, 36"x16' Putnam.....	\$1150.
Lathe, 11"x4' speed.....	35.
Miller, No. 0 Burke, and col.....	60.
Miller, No. 3 Burke and col.....	95.
Miller, No. 2 plain.....	275.
Miller, No. 1 1/2 LeBlond univ.....	1250.
Miller, Beaman ver. and hor.....	2500.
Pipe machine, 8".....	125.
Planer, 36x30x10', 2 hds.....	2900.
Presses, kick, (2).....	15.
Press, No. 3 American Can.....	290.
Press, No. 2 Crosby.....	150.
Saw, Higley 6" cold.....	125.
Shear, circle.....	135.
Shear, 30" square.....	35.

FOR SALE BY

A. D. White Machinery Co.,

108-114 N. Jefferson St., Chicago.

PUNCH PRESSES AND PUNCHES AND SHEARS.

No. 29 Swaine, o. b. l.	19" throat geared punch.
No. 2 Walsh, o. b. l.	No. 300 Toledo slitting shear, 16 ga.
No. 3 American Can, o. b. l.	Rock River s. e. punch, 12" thr.,
No. 45 Crosby, open back.	cap. 1 1/2".
No. 204 Toledo overhanging press.	No. 6, Long & Allstatter, s. e. punch,
No. 29 Bliss, gang, dbl. action.	4" throat.

DRILL PRESSES.

25" Bickford, sliding head.	3-spd. American.
34" Barnes, sliding head.	4-spd. Dwight Slate.
32" Bickford, sliding head.	8-spd. Valley City, No. 1 taper.
1-spd. Henry & Wright high speed.	12 spd. Baush, No. 2 taper.

SCREW MACHINES.

7-16" Cleveland, friction feed.	1" Cleveland.
1" Cleveland, friction feed.	1 1/2" LaVigne.
1 1/2" Cleveland, friction feed.	1 1/2" Cleveland, semi-automatic.
1 1/2" Cleveland, jigger feed.	3" P. & W. automatic.
1 1/2" Hartford, (3).	

ENGINE LATHES.

10"x54" Davis.	28"x10' Fifield.
11"x 5' South Bend.	26"x25' Blaisdell.
14"x 6' Monarch.	30"x14' Blaisdell.
16"x12' Beaman & Smith.	32"x14' Pond.
24"x10' Putnam.	

GRINDING MACHINES.

18" Ransom, disc.	Springfield, dbl. wheel, water.
Yankee Style "B", drill.	No. 2 Leland & F., water.
1 1/2" Norton, floor, (2).	No. 33 Safety Emery Wheel Co.
1 1/2" Safety emery wheel, floor.	plow grinder.
2" No. 7 Sterling, floor.	10x30" Landis plain.
2" Springfield, double wheel, floor.	

MISCELLANEOUS.

Boring mill, 44" Baush, 2 hds.	Lathes, new, 13" to 24".
Boring machine, car wheel, No. 55	Miller, slab, 22" Eynon-Ingersoll.
Industrial.	Miller, No. 2 Becker vertical.
Bolt cutters, 1 1/2 & 2" Acme, sgl. hd.	Oil gas generator, No. 3 American.
Blower, No. 3 Root.	Planer, 18"x4' Whitcomb.
Die filing machine, Simplex.	Planer, 35"x35"x12' Niles, 2 heads.
Gas engine, 35 h. p. Columbus.	Riveter, 4" Schuster.
Hammers, 40 & 60 lb. Bradley.	Rivet spinner, 3/16" Grant.
Hammer, 500-lb. Sandage.	Rivet mch. No. 0 Waterbury s. s.
Hobber, No. 000 Schuchardt & S.	Saw, band, Williamson, tilting.
Keyseater, No. 0 Mitts & Merrill.	Saw, cold, Bryant, 1 1/2" dia. saw.
Keyseater, 36" Morton portable.	Saw, cold, No. 5 1/2 Nutter-Barnes.

SECOND-HAND MACHINERY

FOR SALE BY

Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.

LATHES.

- | | |
|--|---|
| 12"x 6' South Bend, c. r., h. s., new. | 11"x 5' Prentice, h. s., p. r. & ck., used. |
| 15"x 8' South Bend, c. r., h. s., new. | 13"x 6' Sebastian, h. s., c. r. & chuck, used. |
| 16"x 8' South Bend, c. r., h. s., new. | 14"x 6' Fitchburg, s. s., p. r., used. |
| 18"x 10' South Bend, c. r., h. s., new. | 14"x 8' American, q. c. g., c. r., h. s., used. |
| 14"x 6' Mulliner, tool room, q. c. g., taper att., new. | 15"x 8' Sebastian, c. r., h. s., used. |
| 18"x 8' Walcott, q. c. g., d. b. g., c. r., h. s., new. | 16"x 7' P. & W., c. r., h. s., used. |
| 20"x 10' Walcott, q. c. g., d. b. g., c. r., h. s., new. | 18"x 8' Reed, s. s., p. r., used. |
| 14" Pierce, plain head, turret, new. | 20"x 8' Oakley, d. b. g., not screw cutting, (2), used. |
| 14" Warner & Swasey, turret, used. | 36"x 16' Fitchburg, s. s., c. r., taper, used. |
| 20"x 10' LeBlond, q. c. g., h. s., c. r., used. | 36"x 16' New Haven, c. r., s. s., used. |

DRILLING MACHINES.

- | | |
|---------------------------------------|--|
| No. 1 Burke, bench, with chucks, new. | 20" Champion, s. b., lever, new. |
| No. 28 Western Chief, bench, new. | 26" Aurora, b. g., p. g. f., new. |
| 14" Excelsior, 2 tables, new. | 20" Silver, r. b., w. & l., used. |
| No. 27 Canedy-Otto, new. | 20" Silver, s. b., lever, used. |
| 20" Silver, s. b., w. & l., new. | 24" Bickford, s. h., lever, used. |
| 20" Silver, s. b., b. g., p. f., new. | 24" Barnes, all-grd., tapping, used. |
| | 30" Prentice, s. b., s. h., p. f., used. |

SHAPERS.

- 16", 20" & 24" Milwaukee, b. g., latest improved, new.

SCREW MACHINE.

- No. 4 Smurr & Kamen, geared friction head, p. f. to turret, new.

MILLING MACHINES.

- No. 1 U. S. hand, vise & arbor, new. No. 2 Brown & Sharpe, univ., used.

PRESSES.

- | | |
|------------------------------------|---------------------------------------|
| No. 1 Bauroth, o. b. i., new. | No. 30A Perkins, o. b. i., used. |
| No. 3 Loshbough-J., o. b. i., new. | No. 3 Adriance, o. b. i., used. |
| No. 4 Loshbough-J., o. b. i., new. | No. 4 Michigan, o. b. i., grd., used. |

SAWS.

- | | |
|-----------------------------------|---------------------------------|
| Nos. 1 & 2 Marvel, draw cut, new. | 6x6" Peerless, high speed, new. |
| No. 7 Atkins, Kwick-Kut, used. | 9x9" Peerless, high speed, new. |

BRAKES.

- | | |
|--------------------------------|-----------------------------|
| 3' Dreis & Krump, steel, used. | 6' Robinson, cornice, used. |
| 8' Dreis & Krump, steel, new. | 8' Robinson, cornice, used. |

SHEARS.

- | | |
|------------------------------------|--------------------------------------|
| No. 3 Robinson, hand, splitting. | 42" Niagara, Hercules, foot, square. |
| 30" P. S. & W. Acme, foot, square. | No. 11A Badger, alligator, b. g. |

GRINDERS.

- | | |
|--|----------------------------------|
| Nos. 1, 2 & 3 Western, d. e., new. | Auto. Mch. Co., cutter & reamer. |
| Nos. 1, 2 & 3 St. Louis, d. e., new. | Wells, cutter & reamer. |
| No. 20 Safety E. W. Co., elec. (4). | Washburn, drill. |
| U. S., electric, 110 v., d. c., bench. | Essley, cylinder. |

COMPRESSORS.

- | | |
|---|--|
| Nos. 2, 3 & 4 Model B, vert., belted, new. | 10x10" Star vertical, with engine, double acting, cap. 120 cubic feet, used. |
| 6x6x6" Laidlow, D. G., steam, horizontal, used. | |

MISCELLANEOUS.

- | | |
|--|----------------------------------|
| Buffing lathe, No. 47 Safety E. W. Co. | Pipe machine, 2' Borden, belted. |
| Bulldozer, 5" stroke. | Pipe & tube cutter, No. 5 Fox. |
| Chain hoists, 1½ & 2 tons, (3). | Press, 20-ton Weaver, hand, new. |
| Enameling ovens, Roberts, gas, (2). | Punch & shear, No. 1-B New Doty. |
| Hammer, 60 lb. Knowlton, helve. | Rivet spinner, Grant, bench. |
| Hammer, 600 lb. Morgan, steam. | Large stock of tools. |

CHUCKS.

- | | |
|---|---|
| 7½" & 9" 3-jaw Sweetland, scroll, new. | 12" 4-jaw Simplex, ind., new. |
| 8" 4-jaw Sweetland, ind., new. | 12" 3-jaw Manufacturers Equipment Co. air chucks, used. |
| 5", 6", 7½", 9" 3-jaw Cushman, univ., used. | 16" 3-jaw independent, used. |

SECOND-HAND MACHINERY

FOR SALE BY

Swind Machinery Co.,

Widener Bldg., Philadelphia, Pa.

For Immediate Delivery.

Air forging hammer, No. 3 Nazel Beche, capacity 5x5", used.

Millers, No. 7 Becker, Lincoln type, used, (2).

NEW MACHINES.

Cold metal sawing machines, 3½", (5).

Drill press, 3-spindle Kern, ball bearing.

Oil grooving machines, (2).

Shapers, 14", 16" and 28" stroke.

Shear, rotary ring and circle, capacity No. 10 gauge, circles 10" to 60" diam.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

LATHES.

Cataract precision lathe.

14"x 6' Fay & Scott, q. c.

15"x 5' Prentice Bros.

16"x 6' Rahn & Larmon.

20"x 8' old style.

22"x10' old style.

22"x 24' Forsaith.

18" Fox lathe.

SHAPER AND PLANER.

20" Lodge & Davis geared shaper.

36"x36"x14' Pond planer.

MILLING MACHINE.

Cataract precision bench miller.

MOTORS AND GENERATORS.

15 h. p., 3 ph., 60 cy., 440 volts.

10 h. p., 4 ph., 60 cy., 440 volts.

17½ k. w., 125 volt, d. c. generator.

50 k. w., 125 volt generator.

55 h. p., 500 volt, d. c. motor.

60 k. w., 3 ph., 60 cy., 480 v. generator.

150 k. w., 500 volt, d. c. generator.

MISCELLANEOUS.

Beader, No. 0 Niagara, heavy.

Boring machine, horiz., Bement.

Boring mill, 6' Bickford.

Drills, 20-spindle, (2).

Forming press, 20-ton hydraulic.

Grinder, plowshare, No. 35.

Hammer, 25 lb., helve.

Hammer, 40 lb. Bradley, helve.

Press, inclinable, No. 2½ V. & O.

FOR SALE BY

G. L. Bennett Machinery Co., Inc., 30 Church St., New York City

Car wheel lathes and mills.

Drills, 4-spindle Niles heavy pattern, 6-spindle Foote-Burt.

Drills, upright, 36" and 42" Gould & Eberhardt, heavy.

Engine lathe, 14"x6' LeBlond, compound rest and taper attachment.

Engine lathe, 18"x10' Flather, quick change gear, chuck.

Engine lathe, 24"x21' New Haven, compound rest.

Engine lathe, 28"x21' Pond, heavy.

Engine lathe, 48"x10' New Haven, light pattern.

Engine lathe, 34"x22' Gleason type (W. L. Co.) triple geared.

Engine lathe, 92"x26' Union Iron Works, triple geared.

Hammer, steam, 24,000 lb. Bement.

Lathes, turret, Warner & Swasey, Bullard and Potter & Johnston.

Milling machine, vertical, No. 2 Hillis & Jones, rev. table.

Pipe machines, 8" Saunders, also E. C. & B.

Planers, 42"x42"x16' Bement, three heads; 60"x60"x10' Bement, three heads.

Radial drills, 6' Niles universal, 4' Niles universal.

Shear, bevel plate, No. 2 Thompson, 1" plate.

Turret lathes, 34" Gisholt, 4" hole, (2).

Turret lathes, 2x24 J. & L., 20" Bullard, 20" Potter & Johnston.

Vertical mills, 42" Bullard; 36" Bridgeport, 1 head; 30" Bridgeport turret mill.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

ENGINE LATHES.

9"x36" Sebastian, foot power.
11"x3' Rockford, c. r., h. s.
14"x6' Putnam stud lathe.
14"x6' Lodge & Shipley, 3-step cone,
g. c., d. b. g., c. r., (2).
14"x6' Lodge & Shipley, pat. head,
g. c., taper att.
14"x6' Hamilton, c. r., h. s.
14"x8' Prentice Bros., c. r., h. s.
15"x8' Barnes, c. r., h. s.

16"x6' Lodge & Davis, c. r., h. s.
16"x8' Porter, c. r., h. s.
16"x8' Rockwell, c. r., h. s.
18"x8' Schumacher & Boye 3-step
cone, d. b. g., c. r., taper attach.
36"x12' heavy Putnam, tri. gr., c. r.
Niles heavy double end axle lathe,
center drive, 10" opening, 24" swing,
8' centers, 2 carriages with hoist.

TURRET MACHINERY AND SCREW MACHINES.

No. 1 Acme, w. f., a. c. 8".
No. 1 Foster, w. f., a. c. 9/16".
16"x6' b. g. Star plain monitor.
12"x4' Foster plain monitor.

No. 5 Foster, all geared head, single
pulley drive, p. f. to turret and
cross slide, 1 13/16 a. c., with w. f.

PUNCH PRESSES.

No. 0 Consolidated, o. b. i., bench,
(4).
No. 1 V. & O., o. b. i., 14" str.
No. 3 Robinson, o. b. i., 13" str.
No. 4 Walsh, o. b. i., 2 1/2" str.
No. 2 Amer., solid back, 1 1/2" stroke.

No. 3 Bliss, solid back, 1 1/2" stroke.
Consolidated horizontal, 8" stroke,
wt. 7500 lbs.
Vertical bulldozer and bending ma-
chine, 8" stroke, for work 60" long,
wt. 7000 lbs.

DRILL PRESSES.

10" Barnes, friction.
12" Acme, sensitive.
14" Barnes, lever feed.
20" Mechanics, wheel and lever.
20" Silver, b. g., p. f.
4' Bickford plain radial.

3-spindle Avey sensitive high-speed,
15" swing.
Andrew 9-spindle line adjustable
rail drill, 8" maximum centers,
3" minimum, cap. 1/2" drills.

MILLING MACHINES.

No. 1 Rockford plain, back geared.
10" universal head.
Newton 22x22"x5', slab, planer type.

Newton, heavy, plain column, 48"
auto. table feed, vertical, horizon-
tal and rotary milling attachment.

MISCELLANEOUS.

Boring mill, 30" Niles vertical, turret
head, chuck jaws.
Car-wheel borer, 48" Bement, with
hoist and chuck jaws.
Fender wiring machine, Yoder.
Gear hobber, 18" Grant-Lees.
Grinder, surface, No. 3 LaSalle, table
10x28.
Grinder, 18"x36" Landis.
Grinder, gear cutter, 18" G. & E.
Grinder, cylindrical, 10x20 P. & W.
Grinder, valve seat, 4-sp. Foote-Burt
auto., adjustable, minimum 2 1/2"
center, maximum 22".
Hammers, helve, 15 lb. Bradley.
Nut tapper, National, 4-spindle ver-
tical, 1/2" cap.

Punch, grd., 27" throat, 3/4" thru 1 1/2"
Saw, 22" dia. Espen-Lucas, cap. 6"
rounds, 15" I-beams, auto. saw
sharpener.
Shaper, 15" Springfield, crank.
Shaper, 16" Pedrick & A., trav. hd.
Shaper, 24" Steptoe.
Shears, square, 30" Niagara.
Shears, 10' Ryerson, with rotary
traveling cutter, for 20 gauge.
Shear, rotary, Collier Smith, 30" tht.,
for No. 14 gauge.
Slotter, vertical, 12" Bement.
Spinning lathea, 30" Stoll.
Steel brakes, 4' and 6'.
Wire straightener, power, 3/4" cap.

Large assortment of tinnern's tools, folders, rolls, punches, shears, electric
motors and drills, buffing machines, grinders, arbor presses, lathe chucks,
machinists' bench vises, time clocks, gas furnaces, foot lever presses, hack
saws, air compressors, fans, blowers, bench drills, filing machines, index
centers, turret heads, anvils, tapping machines, bench lathes, band saws.
rip and cross-cut saws.

SECOND-HAND MACHINERY

FOR SALE BY

W. L. Perkins, Jr.,

149 Broadway, New York

Lathe, 18"x 8' LeBlond, c.r., cross fd.
 Lathe, 20"x 8' American, c.r., cr. fd.
 Lathe, 20"x 6' Blaisdell, c.r., cross fd.
 Lathe, 20"x 8' Blaisdell, c.r., cross fd.
 Lathe, 21"x 8' LeBlond, c.r., cross fd.
 Lathe, 25"x 12' LeBlond, c.r., cross fd.
 Lathe, 26"x 16' shell boring.
 Lathe, 27"x 18' LeBlond, c.r., cross fd.
 Lathe, 30"x 12' Lodge & S., cross fd.
 Lathe, 32"x 12' Bridgeford, c.r., cr. fd.

Lathe, 36"x 20' Pond, c. r., cross fd.
 Lathe, 40"x 12' Fitchburg, c.r., cross fd.
 Lathe, 40"x 18' shell boring.
 Lathe, 80" Bement, dbl. hd., wheel.
 Miller, 20" Sellers, vertical.
 Miller, 24"x 14' Bement, slab.
 Punch, No. 3 Long & A., spacing.
 Shaper, 12" Smith & Mills.
 Turret lathe, 34" Warner & Swasey, hollow hexagon.

FOR SALE BY

Brownell Machinery Co.,

11-13 Eddy St., Providence, R. I.

Drills, 20" back gear, power feed, upright, new, (4).
 Drills, 24" Sibley, adjustable head, new, (3).
 Gear cutter, 26" No. 3 B. & S. auto.
 Gear cutter, No. 12 B. & S. auto.
 Gear generators, 12" Gleason, single tool.
 Grinder, Greenfield universal cutter and reamer, new.
 Lathe, 16"x 8' Reed, r. and f.
 Lathe, 16"x 6' Reed, r. and f.
 Lathe, 16"x 8' Flather, q. c. g., new.

Lathe, 14"x 6' Rockford, new.
 Milling machine, Reed plain.
 Milling machine, Pedrick & Ayer heavy duty plain.
 Milling machine, No. 6 Becker, 50" feed, vertical, without rotary.
 Shaper, 24" Hendey.
 Screw machine, No. 2 Southworth, 1" capacity, new.
 Screw machine, No. 4 Wood, geared friction head.
 Thread milling machine, No. 3 Lees-Bradner.

FOR SALE BY

Girard Machine & Tool Co., 491-493 N. Third St., Philadelphia, Pa.

LATHES.

11"x 6' Worcester, c. r.
 12"x 6' Blaisdell, c. r.
 13"x 8' LeBlond, c. r.
 13"x 8' LeBlond, q. c.
 14"x 5' Fitchburg, p. c. g.
 14"x 6' Hendey, q. c., taper att.
 16"x 10' Flather, with taper, q. c., (2).
 16"x 6' Lodge & Shipley, q. c.

17"x 8' Johnson, p. c. g., (2).
 17"x 8' Sidney, d. b. g. & q. c., (10).
 18"x 8' Milwaukee, sgl. bk. gr., (9).
 18"x 10' Superior, d. b. g. & q. c., (10).
 18"x 10' Milwaukee, sgl. bk. gr., (3).
 24"x 14' Porter, c. r.
 24"x 12' New Haven, c. r.

SCREW MACHINES AND TURRET LATHES.

No. 2 Garvin.
 No. 4 Foster, (3).
 No. 3 Garvin, b. g., friction head.
 No. 3 P. & W., b. g., friction head.
 No. 2 Garvin, b. g., friction head.

2x24 J. & L., cone drive, bar equip.
 3x36 Jones & Lamson.
 15" Dreeses turret lathe.
 24" Davis chucking lathes.
 Potter & J. auto. chucking, (4).

MILLING MACHINES.

No. 4 Garvin plain.
 Wisconsin hand millers, (5).

B. & S. 36" boring mills, tur. hd., (2).

MISCELLANEOUS.

Cold cutting-off saws, capacities 4", 5" and 6" round.
 Dynamo, 17 k. w. Diehl.
 Gear cutters, 36" Whiton and 36" Gould.
 Hammers, cushioned helve, 250 and 25 lbs.
 Lathe bed turret, for about 32" lathe.
 Planers, 17"x 17"x 3' Draper, with 1 head.
 Pneumatic portable riveter.
 Press, No. 3 Consolidated.
 Saws, Atkins "Kwik Kut", (3).
 Melting furnaces, metal band saws, drill presses, grinders, several assorted sizes sensitive drill presses, etc.

SECOND-HAND MACHINERY

FOR SALE BY

Victor Shaw Ring Traveler Co., 23 Sabin St., Providence, R. I.

TEMPERING FURNACES AND BLOWER.

Air tempering furnaces, No. 1 American Gas Furnace Co., (2).

Blower, No. 6 Boland pressure blower, together with piping, etc., to use with above furnaces.

Lead tempering furnace, Brown & Sharpe.

FOR SALE BY

Cyril J. Bath & Co., Offices 428 Leader-News Bldg., Cleveland, O.

Warehouse 1031 West Front St.

DRILLING MACHINES.

1, 2, 3, 4 and 6 spindle Henry & Wright hi-speed ball bearing sensitive, 1½" belt. All in good condition.

20" Barnes, plain, wheel and lever feed, round table, planed base.

20" Silver plain wheel and lever feed, round table, planed base, (2).

26" Barnes, slid. hd., b. g., p. f., planed base, No. 4 Morse taper, very fine.

Bement heavy drilling and coring machine, for heavy forging and structural work, cap. up to 20" holes, 52" bet. housings, 8" spdl., 36" fd., first class.

GEAR CUTTERS.

24" Fellows gear shaper, late model, excellent shape, complete.

No. 3 B. & S. 26"x8x4 d. p., wt., about 3200 lbs., very fine shape, late model.

49"x16" Gould & Eberhart spur gear and pinion cutter, heavy horizontal cutting type; good condition.

60" Gould & Eberhardt old style spur and bevel gear cutter, chain trip, single pulley drive, full equipment, now in operation.

18"x6" Grant Lees gear hobber for worms, spirals or spurs; very fine shape.

15" Gleason bevel gear shaper, two tools, full set of segments; A-1 shape.

LATHES.

14"x8' LeBlond, taper att., belt f., loose change grs., good condition, c. r. (2).

16"x8' Lodge & S., double back gd., 18" swing, q. c. g., c. r., excellent shape.

18"x10' LeBlond, c. r., belt feed, with hollow spds. and full equipment, (2).

24"x11' Johnson, gear f., comp. rest, hollow spd., good condition, complete.

26"x16' Pond, gear feed, solid spindle, compound rest, full equipment.

Bullard gap turret lathe, 49" swing, 4-jaw 28" chuck, all in good condition.

PRESSES.

No. 4 Consolidated inc. punch press, flywheel 600 lbs., press 3200 lbs., stroke

2½", die space 6", good as new.

163-C Consolidated double crank press, 52" between housings, 2½" stroke,

3½" shaft, 10" die space, geared, good as new.

No. 60 Bliss rack and pinion reducing press; almost new.

SCREW MACHINES AND AUTOMATICS.

No. 4 Warner & Swasey, wire feed, back geared, power feed, round turret; fairly good.

No. 6 B. & S. w. f. screw mch., cap. 1½"x10", good as new. Full equipment.

2" Cleveland automatic with set of tools. New model type; good as new.

2"x24" J. & L. with bar equipment and full set of tools, chucks and collets, belt feed, sliding geared head, single pulley drive, fine condition.

2½" capacity Gridley single spindle automatics, good as new, (12).

2"x24" J. & L., with chucking equipment & collet, reverse position, chuck, pump, etc., belt feed, sliding geared head, fine condition.

MISCELLANEOUS.

Brake, 10' Ohl, geared, with 8" multiple punching equipment, practically new, capacity up to 7/32 metal.

Hammer, 75 lb. Bradley upright strap complete; first class shape.

Hydraulic indexing presses, special, built to draw cartridge cases for 3" shells up to 18' long; good as new, (3).

Hydraulic hi-pressure pumps, Gould triplex, capacity about 30 gallon, 2,000 lbs. pressure, 2½" plungers; good as new, (2).

Rolls, set of Niles rolls, 3 roll, 9" diam., open end, pyramid type, geared belt driven, very good.

Shaper, Smith & Mills single geared crank, with vise, countershaft, etc.; first-class condition.

SECOND-HAND MACHINERY

FOR SALE BY

The Michigan Motor Co.,

940 N. Clark St., Chicago.

Drill press, 20" Milwaukee.
Drill press, 20" Prentiss, b. g.
Lathe, 9"x4' Star, screw cut.
Lathe, 10"x5' Reed, screw cut.
Lathe, 14"x8' Springfield.
Lathe, 18"x6' Blaisdell, taper att.
Lathe, 20"x8' Cinti.
Lathe, gap, 20"x10' Putnam.

Lathe, 20"x12' Flather, p. c. f., c. r.
Milling machine, No. 1½ Rockford.
Motors, 5 h. p. West., a. c., 3 ph., (2).
Punch press, R. & K. No. 3.
Screw mche., No. 4½ Acme.
Shaper, 16" Walcott, b. g.
Shaper, 18" Gould & E., b. g.
Shaper, 20" Cincinnati, b. g.

FOR SALE BY

C. M. Thompson Co.,

35 S. Clinton St., Chicago

NEW MACHINES AND EQUIPMENT.

Drill presses, 10" to 14".
Grinding stands, Nos. 1, 2, 3 & 4.
Independent chucks, 14".

Lathes, 14", 16" and 18" Champion
Tool Works Co's lathes.

USED MACHINES.

Drill presses, 22" and 24".
Grinder, surface, No. 2 Saxon.
Grinder, Greenfield tool and cutter
fully equipped.
Lathe, 12"x5' Davis, motor driven,
taper and draw-in collet attach.

Lathes, turret, 2½" Jones & L.
Screw machine, No. 32 National
Acme automatic, ½" capacity.
Screw machines, ½".
And various other tools.

FOR SALE BY

Peninsular Machinery Co.,

110 Beaubien St., Detroit, Mich.

Drill, 10" sensitive.
Forming roll, 3"x48".
Grinder, cutter, No. 1 LeBlond univ.
Grinder, emery, No. 0 Blount.
Grinder, emery, No. 1 Blount.
Grinder, emery, No. 3 Blount.
Grinder, twist drill, ½" to 2½".
Lathe, 16"x 6' LeBlond, engine.
Lathe, 16"x 8' LeBlond, eng., taper.
Lathe, 14"x 8' LeBlond, eng., taper.
Lathe, 17"x10' LeBlond, automobile.
Lathe, 20"x10' LeBlond, engine.

Lathe, 17"x 6' LeBlond, rap. produc.
Lathe, 24"x10' LeBlond, engine.
Lathe, 12"x 6' Prentice, eng., gd. hd.
Miller, No. 1 U. S., hand.
Miller, No. 1 Van Norman, hand.
Press, No. 0 Atlas, arbor.
Press, No. 1 Atlas, arbor.
Press, No. 2 Atlas, arbor.
Shaper, 16" Rockford, b. gd. crank.
Shaper, 16" Barker plain.
Shaper, 16" Walcott, crank.
Shaper, 16" Gould & Eberhardt.

FOR SALE BY

Hudson Motor Car Company,

Detroit, Mich.

List of Machinery for disposal on hand at Hudson Motor Car plant:
Prices are f. o. b. Detroit—sales terms, one third cash with order, balance
on delivery.

Automatic lathe, 14" Fay, 14" swing over shears and 10" under carriage; turn
to 10" in length; with equalizing drive face plate, self contained taper at-
tachment, oil pump, piping and change gears. Practically new.

Bow chucking machine, No. 99 Defiance, complete with counter belt, shifting
apparatus, 2 chucking heads, knives, guards, 1 cast-iron master cam and
necessary oil cups and wrenches. Practically new.

Bow shaping and equalizing machine No. 398, complete with all standard
equipment. Practically new.

Chucking grinder, No. 6 Bryant. Used.

Disc grinder, No. 6-K, manufactured by Diamond Machine Co., serial No.
5125. New.

Drill, double spindle horizontal, 2x8 Barnes. In excellent condition.

Valve grinder, 12-spindle Foote-Burt. Practically new.

SECOND-HAND MACHINERY

FOR SALE BY

McMullen Machinery Co.,

Blower, No. 2 Garden City.
Bolt cutter, 2" Acme, single head.
Bolt cutter, 1" National, sgl. head.
Drill, No. 2 Quint 6 sp. turret.
Drill, No. 1 Avey 3 sp. sensitive.
Drill, Henry & Wright 3 sp. sens.
Grinder, Yankee W. P. L., drill.
Hammer, 60 lb. Bradley helve.
Hammers, "Quickwork," power.

Grand Rapids, Michigan

Lathes, 13"x5' Lancaster.
Lathe, 14"x6' Prentice.
Lathe, 24"x24' Fifield.
Lathe, 30"x12' New Haven.
Miller, No. 1 B. & S., universal.
Miller, No. 24 Ohio plain.
Press, No. 2 Walsh incl.
Screw machines, No. 3 Foster, (3).
Shear, No. 16A Niagara, rotary.

FOR SALE BY

Clark Machinery Co.,

Centering machine, No. 1 P. & W.
Cutting-off machine, 4"
Drill press, 4-spindle 20" Barnes automatic, all spindles power feed.
Drill presses, 2-spindle b. b. Henry & Wright, (2).
Drill presses, 4-spindle b. b. Henry & Wright, (2).
Gear cutter, No. 1 Standard auto.
Grinder, No. 3 Oesterlein univ., new.

1302 Ontario Ave., Cleveland, O.

Grinder, No. 1 Landis universal.
Grinder, No. 1 Standard automatic.
Miller, double end valve.
Miller, vertical, table 22"x54".
Miller, Garvin, Lincoln type.
Plating dynamos, 180, 450 amp., 5 v.
Screw machine, 24" Hartford auto.
Steam engine, 100 h. p. Erie city auto.
Testing machine, 2000 lb. Olson.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

8" Hardinge Bros. precision lathe.
16"x8' Perkins, p. r.
16"x8' Lodge & Shipley, comp. rest.

16"x8' Prentice, compound, q. c. g., geared head.

TURRET LATHES.

14" Lodge & Davis, plain head.
No. 1 Warner & S. hol. hex. turret.

24" Davis turret boring & chucking lathe, with vert. forming attach.

DRILLING MACHINES.

26" Prentice Bros. standard sl. hd.
22" sliding head, w. & l. feed.
5-sp. Detroit, semi-automatic.
4-sp. Garvin, sensitive.

No. 175-5' arm Cincinnati-Bickford wall type plain radial.
14" Taylor & F. upright sensitive.

SCREW MACHINES.

2" Cleveland full automatic.
No. 00 Brown & Sharpe automatic.
1" Hartford full automatic.
2" Hartford full automatic.
No. 52 four-spindle National Acme.
No. 53 four-spindle National Acme.
No. 54 four-spindle National Acme.

No. 22 New Britain multiple spindle automatic.
No. 23 New Britain multiple spindle automatic, (2).
No. 33 New Britain multiple spindle automatic, (2).

GRINDERS.

Gisholt tool grinder.
Warner & Swasey cock grinder.
20" Whitney wet grinder.

Type "DE" Hisey-Wolf internal.
Greenfield univ. cutter & reamer, (2).
Wells bench cutter and reamer.

HAMMERS.

Coffman, post, power dr., 25 lbs., c. s.
100 lb. Cady, belt drop., c. s.

400 lb.-4 poppet Etna Machine Co. rope drop hammer.

RIVETERS.

3" Shuster, elastic rotary blow.
1/16" Add, elastic rotary blow.

11 1/2" throat Giant rivet spinning machine.

GEAR CUTTERS.

No. 2 Whiton automatic.

KEYSEATERS.

Morton, draw stroke.

Mitts & Merrill, square frame.

SECOND-HAND MACHINERY

FOR SALE BY

C. W. Cullen Machinery Co., Leader-News Bldg., Cleveland, Ohio

Borer, floor, Niles, 64" bar.
Boring mill, vert., 36" Niles, 2 hds.
Boring mill, vertical, 10' Niles.
Boring mill, vert., J. M. Poole, m. d.
Gear cutters, No. 3 Brown & S., (2).
Gear shapers, 36" Fellows, (3).
Grinder, Diamond surface.
Grinder, Acme universal cutter and tool, new.
Lathe, 24"x12' American.

Lathes, 14" Hendey tool room, taper attachment, (2).
Millers, No. 3 Brown & Sharpe, (2).
Miller, No. 4 Brown & Sharpe.
Planer, 60"x80"x21' L. W. Pond, 3hds.
Planer, 72"x52"x14', 2 heads, maker unknown.
Profiler, No. 3 Blake & Johnson.
Radial drill, 4' full universal, back geared, remanufactured.

FOR SALE BY

The O'Brien Machinery Co.,

119 N. Third St., Philadelphia, Pa.

Boring mill, 48" P. & W. horiz.
Drills, 4-16" Hamilton sliding heads.
Drill, 24" Richards, sl. hd., b.g., p.f.
Drill, 26" Aurora.
Grinder, Gisholt, cutter.
Grinder, combination Yankee twist drill and cutter grinder.
Lathe, 14"x10' Cisco.
Lathe, 16"x8' Champion, taper att.
Lathe, 16"x9' Lehman.
Lathe, 18"x8' Cincinnati.
Lathe, 18"x8' Cisco.
Lathe, 21"x14' New Haven.
Planer, 16"x16"x3' New Haven.
Press, No. 3 Toledo, inclinable.
Press, No. 19 Bliss, inclinable.
Presses, ft. pwr., about 30 assorted.
Press, No. 2 Philadelphia, straight back.
Press, DD-66 Ferracute straight col. dbl. action drawing, wt. 21,000 lbs.

Press, EG Ferracute, toggle type, 400 ton pressure.
Press, EG Ferracute, toggle type, 600 ton pressure.
Press, Stiles & Parker toggle joint drawing press, wt. about 3000 lbs.
Radial drill, 3' Drees plain.
Rifling mch., horiz. boring or rifling mch., wt. about 10,000 lbs.
Rolls, 10" bending rolls, 10" diam.
Saws, 30" Espen Lucas, mtr. dr., (2).
Screw machine, 1/2" Warner & Swasey, wire feed turret.
Screw machine, 2 1/2" Cleveland auto.
Shaper, 16" Steptoe.
Shaper, 20" Smith & Mills, back gd.
Shaper, 24" Hollingsworth.
Spinning lathe, No. 5 Bliss auto., 22" swing.
Spinning lathe, 44" swing, heavy duty.

FOR SALE BY

Dale-Brewster Machinery Co., Inc.,

545-7 Washington Blvd., Chicago

50 Church St., New York

LATHES-NEW.

14" Davis close-coupled tool room, oil pan, taper attach.
18"x8' Cisco heavy duty, q. c. g.

SHAPERS-NEW.

14" Davis, cone drive.
16" Davis, gear box drive.

DRILLS-NEW.

14" U. S., h. s., sensitive.
Langelier, h. s., b. b.

MISCELLANEOUS-NEW.

Bench lathes, 6"x30" Dalton.
Boring mill, 42" Bullard, 2 hds., used.
Boring mill, 42" Colburn, swings 45" used.
Grinder, Cleveland, profile.
Grinder, No. 1 LaSalle, surface.
Grinders, Nos. 2, 3 & 4 Partridge, floor.
Grinder, 6"x32" Norton, used.

Hack saws, power.
Millers, No. 1 U. S., hand.
Miller, No. 2-A Fox universal.
Miller, No. OB Fox hand and pwr.
Planer, 30"x30"x10' Gray, 1 head.
Planer, 30"x30"x10' American, single head.
Punch press, Partridge.
Tappers, Partridge Nos. 1 & 2.

Note: Have complete stock milling cutters, drills, etc. Have horizontal drilling and boring machines for very good delivery. Send us your inquiries.

SECOND-HAND MACHINERY

FOR SALE BY

Badger-Packard Mchy. Co., 133-139 W. Water St., Milwaukee, Wis.

LATHES.

- | | |
|-------------------------------|---------------------------------------|
| 11"x5' Star No. 30-P. | 16"x8' LeBlond, 4-st. cone, s. b. g. |
| 12"x5' Le Blond, back geared. | 18"x8' Prentice, geared head. |
| 14"x8' Hamilton, standard. | 18"x8' Prentice, 3 st. cone, d. b. g. |
| 16"x8' Flather, quick change. | 20"x10' Blaisdell, c. r., solid sp. |

MISCELLANEOUS.

- | | |
|---|--|
| Air compressor, Gardner "Midget." | Hack saw, No. 1 Racine high speed. |
| Boring mill, vert. turret, 34" Rogers. | Hack saws, No. 1 Marvel, (2). |
| Drill, 25" Niles, sl. hd., tapping att. | Hack saw, No. 2 Marvel. |
| Drill, 28" Aurora, sliding head. | Hammer, drop, 100 lbs. |
| Flywheel press, No. 18 Bliss. | Oven furnace, No. 1 Stewart, with blower. |
| Gear shaper, No. 3 Fellows. | Pipe mch., No. 1 Merrill, complete with c. s., $\frac{1}{4}$ " to 2" capacity. |
| Grinder, No. 1 Cincinnati univ. | Punch press, No. 3 Rockford. |
| Grinder, 12x48 Modern. | |
| Grinder, cutter, Garvin. | |

FOR SALE BY

Federal Machinery Sales Co., 10 N. Jefferson St., Chicago, Ill.

BORING MILLS.

- F. B. Mills 42" car wheel borer.
 Colburn 42" vertical boring and turning mill, two swivel heads.
 Sellers 80" vertical boring and turning mill, single head.
 Beaman & Smith horizontal boring and turning mill, 4" bar.

DRILLING MACHINES.

- Sensitive drills, various kinds.
 20" Upright drills, various makes.
 24" Aurora, sliding head, b. g., p. f.
 Foote-Burt, heavy duty, 20" swing, single pulley gear-box drive, plain table, capacity 2" in steel.

GEAR CUTTERS.

- Gould & Eberhardt 22"x5"x6 pitch, full automatic, for spurs and bevels.
 Whiton, 36" automatic, spur gears only.

LATHES.

- 10"x 4' Seneca Falls, c. r., h. s.
 12"x 5' Shepard, q. c. g., c. r., h. s.
 14"x 5' Pratt & Whitney, h. s.
 14"x 8' Ryerson, c. r., h. s.
 16"x 8' Porter, c. r., h. s.
 24"x12' Reed, c. r., h. s.
 26"x10' Bradford, c. r., h. s.
 30"x12' Reed, c. r., raising blocks to 42".

MILLING MACHINES.

- No. 25 Becker, b. g., plain.
 No. 9 Kempsmith, b. g., plain.
 Pratt & Whitney, Lincoln type.
 No. 24 Brown & Sharpe, manufacturing, 60" table.

PLANERS.

- 24"x24"x8' American, one head, good as new.
 36"x36"x8' Niles, two heads.

SCREW MACHINES AND TURRET LATHES.

- 8" Pratt & Whitney screw machine, good as new.
 2" Garvin screw machine, fric. gd. hd., pr. fd. turret.
 24" Warner Swasey screw machine, fric. gd. hd., pr. fd. turret.
 20"x8' Hamilton engine turret lathe, friction geared head, power feed turret.

MISCELLANEOUS.

- Cold saw, 3" Smith & Post.
 Hack saw, power, No. 1 Racine high speed.
 Press, power, No. 3 American Can, o. b. i.
 Punch and shear, double end Sellers, cap. 2 $\frac{1}{2}$ " in 2 $\frac{1}{2}$ ", 30" shear, fine condition.
 Riveter, 4" Schuster.
 Shaper, 14" Steptoe plain crank, fine condition.

Send for new "Purple List."

SECOND-HAND MACHINERY

FOR SALE BY

J. L. Osgood,

45 Pearl St., Buffalo, N. Y.

Chucking lathe, 21" P. & J.
Chuck lathe, 24" Davis.
Lathe, eng., 9" Barnes.
Lathe, 17"x8" Blaisdell, and chuck.
Lathe, 24" raised to 34", Fifield 12"
bed, chuck.
Piston and ring machine, Gridley
automatic, motor drive.
Screw machine, hand, No. 1 Foster.

Screw machine, hand, 4" B. & S.
Screw machine, hand, 1" P. & W.
hex. turret.
Screw machines, No. 5 Warner & S.
Shaper, 15" Hendey.
Spur gear testing mch., Gleason.
Time recorder, International, 200
numbers.

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

36"x16" New Haven, q. c. g.
21"x16" Fifield.
26"x10" Pittsburgh, d. b. g.
24"x12" Johnson.
21"x14" Blaisdell, b. g.
21"x10" Lodge & Davis, c. r.

20"x 8" Putnam.
20"x 8" Perkins.
19"x10" Fitchburg, b. g., (2).
18"x12" New Haven, b. g.
18"x10" Davis.
18"x 6" Lodge & Davis.

TURRET LATHES.

2"x24" Jones & Lamson.
7"x14" Potter & J., semi-automatic.

3"x28" Lodge & S., chucking.
27" chucking.

MISCELLANEOUS.

Cold saw, 30" Newton.
Core mchs., 2", 4" and 6" Wadsworth.
Drill presses, all sizes.
Grinder, No. 17 Besly, disc.
Hydraulic forcing press, 135 ton.
Hydraulic wheel press, 6".
Keyseater, No. 2 Davis.

Miller, No. 14 Garvin.
Miller, No. 15 Garvin.
Planer, 32"x8" Hewes & Phillips.
Planers, 20 to 24", 6 and 8' beds, (6).
Radial drill, 42" universal.
Roll grinder, 10"x36".
Roll straightener, 36" Bertsch, cap. 4"

Large assortment of Boilermakers' and General Machinery.
Send for complete list.

FOR SALE BY

E. L. Easley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.

DRILL PRESSES.

No. 4 Avey high speed drill.
No. 1 three spindle Avey.

1 spindle H. & W. high-speed.

GRINDERS.

No. 1 Cincinnati, universal.
No. 1 Norton full univ. tool & cutter.
14"x50" Norton plain.
9"x20" No. 2 Bath univ. grinder.

4"x20" P. & W. sizing grinder.
12"x32" Landis plain grinder.
No. 190 Wells univ., new.

LATHES.

28"x14" Hamilton, taper.
16"x8" Prentice Bros. taper att.
18"x8" Shumacher & Boye, q. c. g.

14"x 6" Lodge & Shipley, q. c. g.
20"x10" Shumacher & Boye, taper.
9"x 4" Star.

SCREW MACHINES.

8" Cleveland automatics, (2).
14"x9" Acme, friction head.
No. 6 W. & S. 2 1/2" cap., fric. head.
No. 1 Foster, plain head, cap. 13-16".

No. 4 Foster, plain head.
No. 224 Garvin 1 7-16" cap., fric. hd.
4" Foster-Kimball, plain head.
3" Smurr & Kamen, plain head.

MISCELLANEOUS.

Boring mill, 36" Niles.
Center chucks for ball case grinder.
Filer, No. 2 Cochrane-Bly.
Gear cutter, No. 12 B. & S. auto.
Hand wheel turning attachment.
Miller, univ., No. 14 Brainard.
Pipe machine, 3" Stover.

Polisher, No. 4 Diamond, motor
driven, 230 v., d. c.
Punch press, No. 76 Toledo, o. b.
Shaper, crank, 16" Barker.
Shaper, 24" Cincinnati, back geared.
Turret lathe, 24"x24" W. & S.
Valve millers, for brass.

SECOND-HAND MACHINERY

FOR SALE BY

The Enterprise Machinery Co.,

28-30 S. Clinton St., Chicago.

Boring, drilling and milling machine, cross travel 12'; vertical 8'; in and out 5'; 6 1/2" spindle, 10'x14' floor plate; 20 h. p. motor, wt. 200,000 lbs.
Boring mill, cyl., Hoefler 2-sp. \$1400.
Blower, Garden City, 5 in opg.
Brake, 8' Chicago, 18 g. 100.
Crane, 40'-25 ton, stm. or elec.
Drill, 23"
Fox lathe, Monitor Am., good 275.
Grinder, edge, 12', like new 500.
Lathe, Spinning, 14" 60.
Lathe, 30"x12', c. r., ck. 500.
Miller, Merritt, div. hd., hvy. 450.

Punch press, s. b. 34" fly, heavy \$ 350.
Planers, 96"x52"x5, 2 heads; 56"x50"x12', 4 hds; 62"x52"x12, 4 heads.
Punch press, Bliss No. 18. 125.
Punch pr., Consol. No. 75, grd. o. b., 10,500. 1150.
Punch, gang, 3' bet. hous., b.g. 175.
Screw mch. 1/2" Pratt & W. 200.
Scr mch., Acme No. 53, 4-sp. 1400.
Shear, 30" Niagara foot. 30.
Tapper, dbl. sp., W. & P. auto. 250.
Shaper, 18" Juengst, worm drive, crank, heavy. 350.
500 other tools. Write us.

FOR SALE BY

The Motch & Merryweather Machinery Company,

714 Lakeside Av., N. W.

Cleveland, Ohio

Branches: Cincinnati, Detroit, Pittsburgh.

AUTOMATICS.

2" Cleveland.
No. 22 New Britain, chucking.

No. 23 New Britain, chucking.
No. 33 New Britain, chucking.

BROACHING MACHINES.

No. 1 Lapointe.

No. 3 J. N. Lapointe.

CENTERING MACHINE.

Whiton, two spindle.

DRILLING MACHINES.

20" Silver.
26" Hoefler.

32" Aurora.
48" Betts upright.

GEAR CUTTERS.

26"x9" Gould & Eberhardt.

36"x9 1/2" Whiton.

GRINDERS.

No. 1 Cincinnati, cutter grinder.
No. 4 Gardner disc grinder.
No. 12 Gardner disc grinder.
No. 70 Heald, internal.
6" x82" Norton.

10"x30" Landis.
20"x1 1/2" single wet tool.
24" double wet tool.
Woods, cutter and tool.

HAMMERS.

35 lb. Williams & White power welding.

KEYSEATERS.

18"x1 1/2" Morton.

LATHES.

16"x 6' Lodge & Shipley, pat. hd.
18"x 8' Lodge & Shipley, pat. hd.
18"x 8' LeBlond.
18"x 8' Bradford.

18"x10' Monarch, q. e.
20"x 8' Bradford.
32"x24' LeBlond.

MILLING MACHINES.

24"x24"x12" Bement-Niles.
Headley, Lincoln type.

Pratt & Whitney, Duplex.

PRESSES.

No. 2 Consolidated, plain inclinable.

No. 5 Stiles & Parker, blanking.

SAWS.

6" Milford hack saw.

7" Paragon high duty.

SCREW MACHINES.

4 1/2" Bardons & Oliver.

No. 10 3" Foster.

TURRET LATHES.

16" Bardons & Oliver.

24" Gisholt.

MISCELLANEOUS.

Belt stropping machine, Builders Foundry.
Fly-wheel balancing machine, Rockford.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company,

111 Broadway, New York

Located at Chicago, Boston and New York

LATHES.

15" x 7' P. & W. speed lathe.
16" x 8' Von Wyck, quick change.
30" x 16' Niles, b. g.

33" x 12' Pond, b. g., 220 v., d. c., m. d.
No. 2 Bement axle lathe.

TURRET MACHINES.

4" 4-spdl. old style Acme auto.
7" Spencer single turret automatic.
14" P. & W. turret lathe.

2" x 24" Jones & Lamson, cone head.
24" size I Gisholt, 220 v., d. c., m. d.
28" Milwaukee turret lathe.

DRILLING AND BORING MACHINES.

13" friction sensitive drill.
32" Aurora upright drill.
60" Niles gooseneck drill.
14" 4-spindle turret drill.
17" 4-spindle gang drill.

No. 5 Dallet portable drill.
3' Grant radial drill and boring mch.
3 1/2' Bement radial drill.
4' Bickford plain radial, speed box.
2" sp. old style hor. b. & d. mch.

MISCELLANEOUS.

File sharpener, American.
Gear cutter, spur and bevel, 24" Newark.
Gear cutter, spur, 42" Bement.
Gear planer, bevel, 42" Gleason, old style.
Grindstone, 34" Cleveland.
Grinder, wet, saw, No. 1 Tindel.
Grinder, cutter, No. 1 Cincinnati.
Miller, plain No., 22 Brainerd, b. g., range 29x74x20".
Grinder, wet, dbl., 34" cup wheels.

Miller, plain, No. 3 Cincinnati old style, range 24x6x18".
Miller, univ., No. 2 Milwaukee, cone drive.
Miller, slab, No. 6 P. & W., table 42"x17".
Miller, No. 7 P. & W. dbble. head, table 120"x204".
Rotary planer, 50" Pond, belt drive, 15' travel.
Shaper, crank, 12" Bement.

Second Hand Machinery

DRILLS.

20" Prentice Bros., lever feed.

3-spdl. Sipp hi-spd. ball bearing.

ENGINE LATHES.

14" x 6' Blaisdell, plain rest.
18" x 10' Whitcomb - Blaisdell, geared head, compound rest.
20" x 8' Blaisdell, plain rest.

24" x 12' Reed, compound rest.
28" x 12' New Haven, comp. rest.
60" x 28' Thayer-Houghton, c. r., triple geared into faceplate.

MILLING MACHINES.

No. 8 Kemp Smith universal, geared feed, Willard dividing head.
5" Thread miller, Milled Screw & Machine Co. make.

SHAPERS.

15" Juengst plain crank.
20" Gould & E. b. g. crank.

22" Horizontal slotter or shaper, single pulley drive.

TURRET LATHES AND SCREW MACHINES.

16" Warner & Swasey, set over turret, chasing attach., stock feed, extra cap. auto. chuck.

2" x 24" Jones & Lamson flat turret, cone head, roller feed.
Automatics, 1/2" Gates, 1/2" Cleveland, 1/2" Hartford, 1 1/2" Hartford.

MISCELLANEOUS.

Chuck jaws, set 12" Horton, new.
Cold saw, 12" Burke.

Gear cutter, 18x4" Brainerd spur.
Foot press, Ferracute.

Marshall & Huschart Machinery Co.

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St. Louis, Mo.

Riverside Machinery Depot

We Own Every Tool Offered

LATHES

- | | |
|---------------------------------------|-----------------------------------|
| 20"x 8' Rahn Larmon, q. c. g., t. a. | 14"x 6' Amtew standard, new, (3). |
| 20"x 6' Rahn & Larmon, q. c. g., (2). | 14"x 6' Prentiss, q. c. g., t. a. |
| 20"x10' LeBlond, standard. | 14"x 6' Springfield standard. |
| 16"x 6' LeBlond, q. c. g., t. a. | 14"x 6' American standard. |
| 16"x 8' Porter standard. | 14"x 6' Sebastian standard. |
| 16"x 6' Reed standard, (2). | 13"x 8' Barnes standard, (2). |
| 16"x 8' Springfield, q. c. g., new. | 10"x 4' Sebastian standard. |
| 16"x 6' Springfield, q. c. g., new. | |

TURRET AND SCREW MACHINES

- | | |
|--|--|
| 3x36 Jones & Lamson tur. lathe, (4). | 12" Warner & Swasey p. h. turret |
| No. 6-A Potter & J. auto. (2). | lathes, with air chuck, (4). |
| 4 1/2" Gridley s. s. automatic. | 16" Warner & Swasey p. h. turret |
| No. 4 Foster l. g. hd. scr. mchs., (2). | lathes, with air chuck, (4). |
| No. 3 S. & K. hand screw mchs., (3). | No. 107 Wells hd. screw mchs., (4). |
| No. 2 W. & S. p. h. hand screw machine, p. f. t. | 2" Cleveland automatic screw machines, jigger feed, (2). |
| No. 2 S. & K. p. h. hd. scr. mchs., (2). | 4-4" Cleveland auto. screw mches. |

GRINDERS AND MILLING MACHINES

- | | |
|-------------------------------------|---|
| No. 60 Heald cylinder grinder. | No. 1 1/2 American plain millers, (3). |
| No. 1 Landis internal grinder. | 1 1/2 Knight milling and drilling, (4). |
| No. 2 W. & M. sur., magnetic chuck. | No. 0 Brown & Sharpe plain miller. |
| No. 3 W. & M. surface, water att. | No. 4 Becker vertical miller. |
| No. 2 Hendy-Norton plain miller. | No. 1 1/2 Becker universal miller. |

GEAR CUTTERS

- | | |
|---------------------------------------|--|
| No. 6 Fellows gear shaper. | 3-36 Brown & Sharpe auto., spur, (2). |
| 3-26 Brown & Sharpe auto., spur, (6). | No. 13 B. & S. auto., spur & bevel, (2). |

SHAPERS AND PLANERS

- | | |
|--|-----------------------------------|
| 36"x36"x12' Wilson 2-head planer, new, 12 wks. delivery. | 24"x24"x6' Flather 1-head planer. |
| 30"x30"x10' Wilson 2-head planer, new, 12 wks. delivery. | 20"x20"x5' Hendy 1-head planer. |
| 36"x36"x8' Cove 1-head planer. | 24" Milwaukee shapers, new, (2). |
| 27"x27"x8' Cincinnati 1-head planer. | 16" Milwaukee shapers, new, (2). |
| | 14" Gould & Eberhardt shaper. |
| | 20" Hendy geared shaper. |

DRILL PRESSES

- | | |
|--|-----------------------------------|
| 2-spindle Baker h. d. drill. | 20" Buffalo, b. g., p. f., (3). |
| 16-spindle Natco drill. | 20" Buffalo drill presses, (3). |
| 3-sp. 8" overhang Henry & Wright. | Almond flexible arm radial, t. a. |
| 24" Milwaukee, back geared, power feed, (2). | 3 1/2 Canedy-Otto plain radial. |
| | 14" U. S. plain drills, (2). |

PRESSES AND HAMMERS

- | | |
|------------------------------------|-------------------------------------|
| Waterbury-F. b. g. heavy, o. b. i. | 1200 lb. B. & S. roll board hammer. |
| No. 2-W Bliss wiring presses, (3). | 800 lb. B. & S. roll board hammer. |
| No. 20 Bliss o. b. i. press, new. | 800 lb. P. & W. board hammer. |
| No. 19 Bliss o. b. i. press, new. | 150 lb. Bradley belt hammer. |

STEAM ENGINES

- | |
|---|
| 20x42 Huttman & Kramer r. h. heavy duty Corliss engine. |
| 15x20 Russell r. h. automatic girder frame engine. |
| 15x20 Russell l. h. automatic girder frame engine. |
| 13x18 Erie r. h. 4-valve automatic engine. |
| 13 1/2x15 Taylor automatic engine. |
| 10x16 Brownell r. h. automatic engine. |

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One 15" Gleason Two-Tool Bevel Gear Generator.

One 24" Fellows Gear Shaper.

Two 36" Fellows Gear Shapers.

One No. 2 Warner & Swasey H. H. Turret Lathe.

One 20" Foote-Burt Heavy Duty Drill Press.

One 16"x8' Porter Lathe.

One 2x24" Jones & Lamson Turret Lathe.

One 3x36" Jones & Lamson Turret Lathe.

One No. 472 Consolidated Double Crank Press.

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A Paying Investment

24"x24"x6' Gray Planer, One Head.

32"x32"x8' Pond Planer, Four Heads.

No. 28—18"x96" B. & S. Plain Grinder.

4' Prentice Plain Radial Drill.

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WATCH THIS PAGE

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|---|---|
| 1—42" Bullard Boring Mill. | 1—West 3" Hydraulic Banding Mch. |
| 1—3" Plain Radial Univ. Machine Co. | 1—No. 3 Brown & Sharpe Universal Grinder. |
| 1—Rockford Heavy Duty Drill. | 2—16x8 Putnam Lathes, compound rest, pan, pump, taper. |
| 1—No. 3 Landis Universal Grinder. | 2—2½x36" Marvel Lathes. |
| 1—New 25x18' Sidney Lathe. | 2—25x25x8' Sellers Planers. |
| 1—9' Pitt Lathe. | 2—14" Hendey Friction Shapers. |
| 1—No. 2 Brown & Sharpe Universal Grinder. | 1—4¼ Gridley Motor Drive Automatic, 220 volt. |
| 1—Detrick Single Punch and Shear, 18" throat, punch ¾x¼, shear 2½x½". | 1—18x8 Flather Lathe, C. R. |
| 1—42" Niles Car Wheel Borer. | 1—18x8 Porter Lathe, C. R. |
| 1—800 lb. Morgan Steam Hammer. | 1—36x36x12½ Open Side Planer. |
| 1—24x24x6' Powell Planer. | 1—30x30x8' Pond Planer. |
| 1—14" Walcott Crank Shaper. | 2—18" Hendey Friction Shapers. |
| 1—No. 2 Warner & Swasey Screw Machine. | 1—20x10 Pratt & Whitney Lathe, taper. |
| 1—38" Brown & Sharpe Spur Gear Cutter. | 1—32"x12" Draper Lathe. |
| 2—2¼" Gridley Motor Drive 220 V. Automatic. | 1—80x36"x15' Lincoln Planer, 4 hds. |
| 1—64x64x10' Pond Planer, 2 heads. | 1—20" Smith & Mills Crank Shaper. |
| 1—5' 6" Niles Radial Drill. | 1—24x18' Pond Lathe. |
| 1—New No. 6 Bryant Semi-Automatic Grinder. | 1—38x20' New Haven Lathe. |
| 1—14x5 Putnam Lathe, C. R. | 1—36x36x20' Putnam Planer. |
| 1—No. 4 Inclinator Press. | 1—24" Aurora Sliding Head Drill. |
| 1—Reed Punch and Shear, 24" throat, capacity punch 1"x¾". | 2—24" Snyder Sliding Head Drill. |
| 3—25"x25"x6' Sellers Planers. | 1—26" Prentiss Sliding Head Drill. |
| 1—10" Gould & Eberhardt Crank Shaper. | 1—36" Snyder Sliding Head Drill. |
| 1—No. 1 Bardons & Oliver Scr. Mch. | 1—36" Aurora Sliding Head Drill. |
| 1—3¼x36 Jones & Lamson Chucking Lathe. | 1—Rockford 6-Spindle Multiple Drill. |
| 1—No. 0 Brown & Sharpe Scr. Mch. | 1—48x48x12' Gray Planer, 2 heads. |
| 1—Jenckes 3" Band Turning Lathe. | 1—36x14' Triple Grd. Fifield Lathe. |
| 1—3¼" Gridley Motor Drive, 220 V. Automatic. | 1—No. 7 Bement Horizontal Boring, Milling & Drilling Machine, 5" bar. |
| | 1—64x64x10' Pond Planer with 2 hds. |
| | 1—62x16 Pond Lathe. |
| | 1—12" Industrial Slotter. |
| | 1—Brown & Sharpe Universal Grinder 22x78". |

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 - 1—Cincinnati Time Clock, 50 men (like new).
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- 1-41' swing Niles, cylinder.
- 1-43'x18' Draper.
- 1-40'x18' Pittsburgh, triple geared, c. r., q. c. g.
- 3-40'x18' Pittsburgh, triple geared, c. r., q. c. g., taper.
- 1-37'x16' Springfield.
- 1-36'x16' Johnson, triple geared, full quick change gear.
- 1-28'x14' Lodge & Shipley, select. gd. hd., c. r., q. c. g.
- 4-28'x14' Lodge & Shipley, motor dr., select grd. hd., c. r., q. c. g.
- 1-27'x13' Schumacher & Boye, full q. c. g.
- 2-26'x12' Wickes, d. b. g., c. r., semi-q. c. g.
- 1-26'x12' Putnam, motor arr., carriage turret.
- 5-26'x12' Putnam, motor arr., c. r., semi q. c. g., taper.
- 2-26'x12' Putnam, motor arr., c. r. semi q. c. g.

DRILLING MACHINES

- 1-3' Mueller.
- 2-2' Mueller.
- 2-2' Fosdick.
- 1-4 spdl. Foote-Burt Rail Drill.
- 1-10 spdl. Foote-Burt Rail Drill.
- 1-12 spdl. Moline Rail Drill.

GEAR CUTTERS

- 1-24" Fellows Gear Shaper.
- 2-No. 1 Schuchardt & Schutte, spiral, 28" capacity.
- 1-No. 2 Schuchardt & Schutte, spiral, 36" capacity.
- 1-36" Fellows Gear Shaper.
- 1-36" Gleason Bevel Former.

GRINDERS

- 3-No. 200 Heald, Piston Ring.
- 1-Diamond Face Grinder.
- 1-16x36 No. 23 Landis Plain.
- 2-No. 1 1/2 Landis Internal.
- 1-No. 5 Bath Duplex.

PRESSES

- 2-V. & O. Foot Presses.
- 1-No. 4-A Willard Inclinalbe.
- 1-No. 3 Robinson Inclinalbe.

- 1-No. 4-P American Can Punch.
- 2-No. 7 1/2 Bliss S. S. Trimming.
- 1-No. 5 V. & O. Inclinalbe geared.

AUTOMATIC SCREW MACHINES

- 3-2 1/2" Gridley.
- 1-3 1/2" Cleveland.
- 1-4 1/2" Cleveland.

TURRET MACHINES

- 1-20" Pratt & Whitney Geared Hd. Chucking.
- 2-21" Gisholt, 2 1/2" Hole.
- 1-21" Gisholt, 3 1/2" Hole.
- 2-22" Steidle Turret, 4" Hole.
- 1-24" Davis Chucking.

PLANERS

- 1-26"x26"x6' American.
- 1-24"x24"x6' Gray.
- 1-24"x24"x6' Cincinnati.
- 2-24"x24"x5' Gray.
- 1-24"x24"x4' Gray.
- 1-22"x22"x6' American.
- 1-22"x22"x6' Gray.
- 1-22"x22"x5' Flather.

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Universal Swivel Table for Radial Drill.

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- 1—3½' Niles Plain Radial Drill.
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- 1—20" Baker Heavy Duty Drill Press.
- 2—20" Champion Drill Presses, B. G., P. F.
- 1—20" Prentiss Drill Press, W. & L.
- 1—Quint 4-Spindle Drill.
- 1—Fox 4-Spindle Drill.
- 1—Reed & Co. 3-Spindle Drill.
- 1—Dwight-Slate 6-Spindle Drill.
- 1—Cordan 4-Spindle Drill.
- 3—10" Barnes Friction Drills.
- 4—10" Burke Bench Drills.

SHAPERS

- 1—20" Steptoe Plain Crank Shaper.
- 1—16" Ohio Crank Shaper.
- 1—15" Gould & Eberhardt Shaper.

PLANERS

- 1—24x24"x6' Smith Silk Machine Company Iron Planer.
- 1—18x18"x5' Fitchburg Iron Planer.

GRINDERS

- 1—12x32" Landis No. 2 Universal Cylindrical Grinder.
- 1—No. 2 Grand Rapids Universal Grinder.

MILLING MACHINES

- 1—No. 2-B Rockford Universal Miller.
- 1—No. 1½ Rockford Plain Miller.
- 1—No. 1 U. S. Hand Miller.
- 1—No. 6 Whitney Hand Miller.

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**Two No. 56, 2 $\frac{1}{4}$ " National Acme
Multiple Spindle Automatic Screw Machines**
Single Belt drive complete. Used less than six months. Large
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Six $\frac{1}{4}$ Inch Automatic Screw Machines
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Each fitted with screw slotting attachment.
Manufactured by Hartford Machine Screw Company.
These machines adapted to the rapid production of all kinds
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In guaranteed first class condition.

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Two Pratt & Whitney Plain Cylindrical Grinders,
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One Lucas Horizontal Boring Machine, 3" bar, cone
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One 30" Bullard Hexagon Swivel Head Boring
Mill, in good order.

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Lathes

- 70"x20' Fifield, triple geared.
- (3) 40"x18' Pittsburgh, triple geared, extra heavy.
- 26-86"x26' McCabe, 2-spindle motor-driven.
- 48" Niles car wheel boring lathe.
- 16"x11' New Haven Pulley Lathe.
- 26"x18' American geared head, q. c. gear, c. r., power cross feed.
- 18"x12' American, as above.
- 24"x 8' Lodge & Shipley, q. c. g., compound rest, power cross feed.

Presses

- No. 54 Garrison straight sided sgl. cr.
- No. 92-B Toledo, weight 9400 lbs.
- No. 35 Arch press, weight 5000 lbs.
- No. 3 Perkins dbl. action toggle pr.
- No. 81 Ferracute dbl. cr. grd. press.
- 150 and 75 t. Ferracute knuckle joint
- Stiles double crank press.
- 10' Power brake, capacity 16 gauge.
- 500-ton Robinson hydraulic vert. pr.

Planers

- 44"x44"x12' Pond, 1 head on rail, 1 side head, heavy type.
- 30"x30"x 8' Powell, 2 heads.
- 40"x40"x14' New Haven, single head.
- 30"x30"x12' Cincinnati, 2 heads.
- (2) 30"x30"x10' Pease, single head.
- 30"x30"x12' Harrington, 2 heads.
- 30"x30"x12' Pratt & Whitney sgl. hd.
- 30"x6' Sellers, single head.
- 25"x25"x8' Sellers, single head.
- 24"x24"x6' Powell.
- 24"x24"x5' Pond, single head.
- 26"x26"x9' Pond, 2 heads.
- 22"x22"x4' Wheeler, single head.

Slab Millers

- 24"x24"x48' Newton, extra heavy.
- 22"x22"x6' Pratt & Whitney.
- 24"x30"x6' Ingersoll (motor driven), 2 vertical spindles, good as new.

Radial Drills

- 7' Prentice pl., latest type motor dr.
- 48" Niles plain.
- 48" Gang, tapping attachment.
- 54" Dreses, plain.
- 42" American,
- 38" Dreses,
- 24" Fosdick.

Grinders

- No. 84 Bath duplex.
- No. 3 Bath universal.
- No. 2 Bath universal, internal att.
- Diamond surface grinder, 15"x48".
- 10"x30" Atlas universal.
- Springfield planer-type, 24"x8'.
- No. 24 Bath duplex internal grinder.
- No. 11 Landis plain.

Shapers

- 24" Gould & Eberhardt, motor dr.
- 24" Juengst.
- 24" Walters Bros.
- 20" Gould & Eberhardt.
- 20" Hendey.
- (2) 20" Cincinnati.
- 16" Smith & Mills.
- 16" Garvin.
- 12" Hendey.

Milling Machines

- No. 3 Brown & S. univ., latest type, motor driven.
- (2) Newton vert., 38" dia. cutter hds.
- No. 5 Brown & Sharpe vertical.
- No. 2 Putnam univ., dividing heads.
- No. 24 Garvin univ., dividing heads.
- No. 14 Cincinnati univ., dividing hds.
- No. 2 LeBlond plain miller.
- No. 2 Pedrick & Ayre plain miller.
- Newton 2-spindle miller.

Hammers

- 1100-lb. Pittsburgh Knife & Forge Co., steam, single leg.
- No. 4 Nazel pneumatic (almost new).
- 500 lb. Bell single frame steam.
- 500-lb. Bradley upright.
- 200-lb. Beaudry upright.
- 200-lb. Bradley upright.
- 40-lb. Bradley helve.
- 30 lb. Bradley, motor driven.

Miscellaneous

- 15-ton Alfred box traveling crane.
- 8" Eaton, Cole & B. pipe machine.
- No. 3 Newton cold saw.
- 10"x10" Bury air compressor.
- 11"x30" C. H. Brown corliss engine.
- Burdick bolt-forging mch., 1" cap.
- 22"x16" Bridgeport auto. threading machine.
- 18" Betts heavy slotter, circular table.

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We are in the market for the following Air Equipment, either new or second hand, with all accessories necessary for the proper operation. All items must be in first class operating condition, and offered subject to inspection and acceptance. It is very essential that we secure full description and prompt shipment.

AIR EQUIPMENT:

- 1—Steam Driven Air Compressor, 1000 to 1500 cu. ft. capacity, 100 to 125 lb. pressure.
- 25—Reversible Drills for capacity in metal up to 1½".
- 10—Ditto 1½".
- 5—Ditto 2".
- 5—Special Drills for Reaming, Tapping, Flue Rolling.
- 2—Close quarter Drills.
- 1—Pneumatic Grinder.
- 20—Chipping Hammers for light work in Chipping, Heading & Caulking.
- 10—Ditto for medium work.
- 5—Ditto for heavy work.
- 25—Riveting Hammers with safety set retainers for light and average riveting.
- 15—Riveting Hammers for heavy riveting.
- 10—Riveting Busters.
- 10—Holder Ons.
- 10—Jam Riveters.
- Approximately 2500' of ½", 6 or 7 ply, wire wound pneumatic hose complete.
- 6—Bowes Couplings.
- Assorted sizes and quantities twist drills for pneumatic boring machines with flat sided Morse taper shanks.
- Approximately six dozen each assorted sized ship augers up to 2" with flat faced Morse taper shank.
- Assorted sizes Reaming Tools for above drills.

We will ask that you kindly submit your complete estimate on the above, including very earliest promise of shipment, by return mail if possible.

We are also in the market for the following equipment, either new or second hand. If the latter, it must be in first class operating condition. All tools, etc., to be complete with the usual accessories that go along with them.

LATHES:

- 1—16" swing, 8'x10' bed.
- 1—16" " 10'x12' "
- 1—18" " 10'x12' "
- 1—20" " 26'x28' "
- 1—16" Turret Lathe.

DRILL PRESSES:

- 1—20" Drill Press.
- 1—28" " "

RADIAL DRILL:

- 1—48" to 60".

BOLT HEADER:

- One to handle material up to 2".

BOLT THREADER:

- One to handle material up to 2".

Beaumont Ship Building & Dry

TO BUY

PIPE CUTTERS:

One to handle material up to 2".
One to handle material from 2" to 8".

PUNCH & SHEARS:

One to handle flats up to and including 1½"x10", also for rounds with capacity corresponding.

STEAM HAMMER:

1—1000 to 1500 lb. Steam Hammer.

SHAPER:

1—20" to 28" Shaper.

SLOTTER:

1—24" Slotter.

HORIZONTAL BORING MILL:

1—10" Boring Mill.

BRAZING OUTFIT:

1—Brazing Outfit.

SHEET BENDER:

1—One to handle up to 12' sheets.

ELECTRIC OVERHEAD TRAVELING CRANE:

One, of 3 motor type, for 25' to 45' span approximately ten ton capacity.
Motor characteristics, 220 volt, 3 phase, 60 cycl.

PLANERS:

1—36"x36"x12' Planer.

1—48"x48"x16' Planer.

MILLING MACHINE:

1—Universal Milling Machine.

UNIVERSAL GRINDER:

1—Universal Grinder No. 2 or No. 3.

YANKEE DRILL GRINDER:

1—Yankee Drill Grinder.

EMERY STAND:

1—Emery Stand, 2 Wheels, to take up to 16" diameter wheel.

TWIST DRILLS:

Approximately 200 assorted sizes up to 3" diameter. Also assorted sizes of Reamers and Mandrels.

ELECTRIC MOTORS:

6—25 to 35 H. P. 220 volt, 3 phase, 60 cycle conduction motors complete with starters of any standard speed.

2—50 H. P. Ditto.

MISCELLANEOUS MACHINISTS & BLACKSMITH VISES:

HACK SAW:

1 Automatic Power Hack Saw 18" or over.

OXY ACETYLENE WELDING OUTFIT:

One outfit complete with all accessories.

It is absolutely essential that we secure prompt shipment on the above equipment, so will ask that you kindly state the very best possible shipment you may be able to offer, taking into consideration that we are able to furnish *Priority Certificate evidencing the use of such material for U. S. Government service.*

Dock Co., Beaumont, Texas

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"N. B." Bench Legs

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"NEW BRITAIN" All-Steel Bench Legs insure benching that is rigid without wall support; that can be moved or rearranged with the least trouble, without loss or damage; that allows for heating pipes in the rear, if desired, with provision for underneath shelving and bins; that is low in cost, easy to install and modern in its conveniences.

"NEW BRITAIN" All Steel Bench Legs are light in weight, but stiff and unbreakable—built up of formed sections of pressed steel and electrically welded. The patented stringer feature also adds materially to the rigidity of the benching, so the legs may be set fully eight feet apart, reducing the number required.

Write for Bulletin No. 1200

The New Britain Machine Company

**"Shop Furniture
Originators"**



**New Britain,
Conn. U.S.A.**

